1999 Health Care Survey of DoD Beneficiaries:

Child Technical Manual

September 2000

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Introduction

The 1999 Child Health Care Survey of Department of Defense Beneficiaries (HCSDB) is the primary tool with which the TRICARE Management Activity (TMA) of the Assistant Secretary of Defense (Health Affairs) monitors parents' opinions concerning their child's experience in the military health system (MHS). The survey was conducted from 1996-1997 and again in 1999. The 1999 Child HCSDB was closely modeled to the Consumer Assessment of Health Plans Survey (CAHPS) 2.0H survey instrument so that findings for children in the MHS could be compared to the results of CAHPS surveys of privately insured children in the private sector. The Child HCSDB is intended to answer the following questions:

- How *satisfied* are sponsors of children in the MHS with their child's health care and their health plan?

- Does *access* for children at military and civilian facilities meet TRICARE standards?

- What aspects of MHS care contribute most to beneficiary satisfaction with their child's health care experiences? With which aspects are beneficiaries least satisfied?

- What are the demographic characteristics of children in the MHS and their sponsors?

- How do children in the MHS compare with children in the private sector on issues related to satisfaction and access to care?

The HCSDB is a mail survey of a representative sample of MHS beneficiaries. It is sponsored by the TRICARE Management Activity in the Office of the Assistant Secretary of Defense (Health Affairs) [OASD(HA)] under authority of the National Defense Authorization Act for Fiscal Year 1993 (P.L. 102-484). The DoD Defense Manpower Data Center (DMDC) prepared the sampling frame, which consists of selected variables for each MHS beneficiary in the Defense Enrollment Eligibility Reporting System (DEERS) database in June 1999. DEERS includes everyone who is eligible for a MHS benefit (i.e., everyone in the Uniformed Services--Army, Air Force, Navy, Marine Corps, Coast Guard, the Commissioned Corps of the Public Health Service, National Oceanic and Atmospheric Administration, Guard/Reserve personnel who are activated for more than 30 days -- and other special categories of people who qualify for benefits). DEERS includes those on active duty, those retired from military careers, immediate family members of people in the previous two categories, and surviving family members of people in these categories.

Mathematica Policy Research, Inc. (MPR, Washington, D.C.) prepared the sample of 15,946 child beneficiaries under subcontract to United Healthcare (Minneapolis) (Jang et al. 1999). Also under subcontract to United Healthcare, Data Recognition Corporation (DRC, Minneapolis) fielded the survey between September 1999 and March 2000. MPR analyzed the survey data, reported on the results, and prepared this document, the "1999 Health Care Survey of DoD Beneficiaries: Child Technical Manual" under task order 14, under Contract Number 282-98-0021.

This manual is designed to be used as a reference by analysts in OASD(HA) as they interpret the survey findings and prepare briefings. The manual provides detailed documentation on the following: naming conventions for variables, editing procedures, selection of records, computation of response rates, recoding of variables, computation of weights, variance estimation, and construction of tables and charts for the report. The manual enables an analyst to link each cell in each table in the report to the associated question in the Child questionnaire and/or to the variable

in the survey database. The manual also enables an analyst to follow, and replicate if desired, the processing of the raw survey data through each step in the production of the final database.

A.   OVERVIEW OF THE HCSDB

This section represents an overview of the methodology used in the survey. From the sample, 6,190 parents or sponsors of MHS beneficiaries younger than 18 years of age completed and returned a 1999 Child HCSDB questionnaire between February 2000 and May 2000.

1.   Sample Design

The 1999 child sample design is based on three sample stratifications—enrollment status, geographic area, and age group. Enrollment type is defined by enrollment in TRICARE Prime with a military primary care manager (PCM), enrollment in TRICARE Prime with a civilian PCM, and not enrolled in TRICARE Prime. The effect of this stratification is to allocate a greater proportion of the sample to those enrolled in Prime and a smaller proportion to those not enrolled in Prime.

Geographic area refers to the beneficiary's regional assignment. The beneficiary's regional assignment is determined by the MTF that bears the financial responsibility for the beneficiary's health care. Only beneficiaries in the continental United States were included in the sample. Regions are combined into three "super regions". Regions are organized to reflect the relative maturity of TRICARE Prime in each region. The areas are referred to as *new regions*, where Prime is most recently implemented (regions 1,2, and 5); *mature regions*, where Prime was first implemented (regions 6, 9-12, and 16); and *other regions* (regions 3, 4, 7, and 8).

Beneficiaries were assigned to one of three age groups: younger than 6 years old, between 6 and 12, and between 13 and 17 years old. Sampling procedures ensured that only one child per household was surveyed. In order to test different versions of certain questions, the sample was separated into two equal, randomly selected halves, which received two different versions of the questionnaire.

2.   1999 Child HCSDB

The HCSDB is an annual health care survey that was first fielded in 1995 for active duty military personnel, retirees, and their adult family members. In 1996 and 1997, the survey was expanded to include topics related to health care of children. In those years, the survey consisted of two separate questionnaires: Form A for adults and Form C for children's topics. The 1998 HCSDB did not include a child survey. In 1999, fielding of the child survey was resumed. The child survey assesses parents' satisfaction with their child's access to health care, TRICARE Prime, communication and customer service related to pediatric care.

The 1999 Child HCSDB was closely modeled on CAHPS 2.0H survey instruments so that findings for children in the MHS could be compared with the results of CAHPS surveys of privately insured children in the civilian sector. Most of the survey questions are identical to the CAHPS questions. CAHPS is a survey program sponsored by the Agency for Health Care Research and Quality (AHRQ), U.S. Department of Health and Human Services, and the Picker Institute. The program is designed to monitor the satisfaction and access of civilian health care plan beneficiaries. A few of the questions are "CAHPS-like" but are modified slightly to better fit the MHS context; some questions are unique to issues related to TRICARE. Two versions of the child questionnaire were fielded. They were identical except for a series of questions in the section, Your Child's Health. Both of the annotated questionnaires, version 1 and version 2, appear as Appendix A.

The Child HCSDB covers the following topics:

- **Health Plan.** This section collects data on TRICARE Prime enrollment and the use of supplemental insurance and/or other private insurance by the child in the past 12 months.

- **Your Child's Personal Doctor or Nurse.** In this section, respondents are asked about their relationship with their child's personal doctor or nurse. They are asked to rate their child's personal doctor or nurse on a scale of 0 to 10 where 0 is the worst and 10 is the best. There are additional questions on problems receiving care from a TRICARE primary care manager.

- **Getting Health Care from a Specialist.** This section collects information about the child's need for and access to care from specialists. Respondents rate the specialist that their child sees most frequently on a scale from 0 to 10 where 0 is the worst and 10 is the best.

- **Calling Doctors' Offices.** In this section, parents are asked about access to care and how frequently they obtain information by telephone.

- **Your Child's Health Care in the Last 12 Months.** This section collects information on where children of DoD beneficiaries received most of their care in the past 12 months. These are questions on both military and civilian care. This section also contains questions about general and specific care at the facility the child used the most. These questions cover topics such as availability of providers and their staff, convenience, and courtesy and respect shown by providers and their staff. These questions are similar in content and format to questions in CAHPS.

- **Your Child's Health Plan.** This section is designed to measure beneficiaries' satisfaction with their child's primary health plan. Respondents are asked to rate their child's health plan on a scale of 0 to 10, where 0 is the worst and 10 is the best. Respondents are asked about their satisfaction with Prime as their child's health plan and the possibility of disenrolling their child from Prime. Additionally, respondents are asked questions on problems with claims processing for their child, finding and understanding written materials from their child's health plan, customer service, processing paperwork, and resolving complaints.

- **Your Child's Health.** This section collects information about the child's overall health. Questions regarding the child's health, any other condition that is limiting, use of medication, use of special therapies, treatment or counseling are included in this section. Additional questions about the child's use of medical, mental health, or educational services or the need for more services are also incorporated into this section. These questions were designed to identify children with chronic conditions. Version 2 of the Child HCSDB contains an additional question on whether or not the child needs extra help to play or do school activities.

- **About Your Child and You.** This section collects demographic information about the child, including age, gender, and race. Respondents also report their age, gender, education level, and relationship to the child.

3. Survey Response

The survey was fielded by mail. Out of the initial sample of 16,000, sponsors of 15,865 children were surveyed. This sample was split into two sub-samples: version 1 and version 2. The first sub-sample contained 7,933 records; the second sub-sample included 7,932 records. DRC sent out 15,863 surveys during Wave 1 between February 14 and February 15, 2000. The final mailing took place on March 29, 2000. Of these questionnaires, 6,190 were completed and returned by May 10, 2000, for a response rate of 39 percent.

4. Database Development

MPR edited the data, selected the records for inclusion in the final database, and constructed variables to be used in the reports. To ensure that the survey data was representative of the DEERS population, MPR developed weights to take account of the initial sampling and the sampled individuals who chose not to respond to the survey.

5.   Report

This year's results are presented in electronic HTML format on TMA's website at http://www.TRICARE.USD.MIL.   In the 1999 Child TRICARE Consumer Report, results are presented by enrollment group, age, and region. Results from this year's survey are compared to the civilian population using data from the national CAHPS Benchmarking Database (NCBD). Programming specifications used to create the Consumer Reports using the 1999 Child HCSDB data are included as Appendix E.

B. ORGANIZATION OF THIS MANUAL

Chapter 2 presents the procedures used in fielding the survey. Chapter 3 explains how the database was developed. It covers naming conventions, editing procedures, record selection criteria, descriptions of all variable types, definitions of each constructed variable, the development of satisfaction and health status scales, and weighting procedures. Chapter 4 describes how the database was analyzed. The description includes rules for developing response rates, an explanation of the dependent variables and independent variables, and the methodology for estimating the variance of estimates. The manual concludes with a series of technical appendices:

- Appendix A: Annotated questionnaires – survey questionnaire annotated with database variable names, version 1 and version 2
- Appendix B: Letters sent to the respondents during the fielding of the survey
- Appendix C: Data Processing Architecture
- Appendix D: Plan for Data Quality – Coding Scheme
- Appendix E: Statistical Specifications for Child TRICARE Consumer Report
- Appendix F: Web Specifications for Child TRICARE Consumer Report
- Appendix G: SAS code
- Appendix H: The SUDAAN code for calculating variance of estimates

Chapter

2

Survey of Children

This chapter presents information on the survey administration cycle for the 1999 Child Health Care Survey of DoD Beneficiaries (HCSDB), with specific details on the survey mailing cycle and the number of surveys received during the field period.

A. SURVEY DEVELOPMENT

Two versions of a twelve-page questionnaire were developed, where the questions in all sections but one were identical. Version 2 of the questionnaires contains additional questions in the section entitled "Your Child's Health" which focuses on identifying children with chronic conditions. (A sample of both versions can be found in Appendix A.)

The Foundation for Accountability, Consumer Assessment of Health Plans consortium, and National Committee for Quality Assurance have been working together to develop 4-5 screener questions to identify children with special health care needs (CSHCN). The 1999 Child Health Care Survey of DoD Beneficiaries was modified to accomplish the following research:

- To determine the best way to ask the questions that establish if a child has a chronic condition, uses medications, has decreased functioning, receives or needs special services, or requires counseling.

- To identify chronically ill children through means other than diagnostic criteria, utilization, costs, and benefit status.

The 1999 Child Health Care Survey of DoD Beneficiaries was modified to accomplish this research under the joint efforts of DoD and the CAHPS consortium.

B. SAMPLING PROCEDURE

At the request of TRICARE Management Activity, MPR split the sample population file in half, creating two sub-samples of 7,945 records each. The following steps were followed to split the sample.

1. MPR eliminated one child per household for all households where two children were sampled. MPR used the beneficiary's SSN and STREET1 variables to identify households in which more than one child was sampled. There were 110 households each with two sampled children. MPR randomly selected one child from each household with two or more children in the sample, leaving 15,890 children in the sample.

2. MPR flagged records with "bad" addresses. There were a total of 62 bad addresses. An address was considered bad if it met any of the following three conditions:

a) STREET1 and STREET2 and STREET3 are blank, and/or

b) CITY is blank, and/or

c) STATE is blank.

3. MPR randomly assigned the remaining child sample into two sub-samples.

The sample was split after DRC sent it to NCOA for address verification.

C. SURVEY OPERATIONS ACTIVITIES

The operational support for mailing the survey involved four mailings to beneficiaries between September 27, 1999 and March 29, 2000. Targeted mailings and remailings have been integrated into the mailing administration in order to increase response rates. The main mailings are the following: notification mailing, first wave of surveys mailing, reminder/thank you mailing, and second wave of surveys mailing. All mailings have been completed. The field period closed on May 10, 2000.

D. ADDRESS UPDATE ACTIVITIES PRIOR TO AND DURING SURVEY ADMINISTRATION

Upon receipt of the sample file from Mathematica Policy Research (MPR) on August 23, 1999, the addresses were examined to determine whether an address was suitable for mailing. Within each record, a priority was assigned to each address based on its source and type, e.g., Defense Enrollment Eligibility Reporting System (DEERS) residence address, DEERS unit address. Data Recognition Corporation (DRC) sent all sample records (excluding foreign countries) with sufficient address information to an outside vendor where they were interfaced with the National Change of Address (NCOA) database to obtain updated address information. Addresses outside the U. S. were not submitted, as they were not included in the NCOA database. A total of 15,939 records were sent to the NCOA prior to the first notification letter mailing. NCOA returned the updated address file to DRC and that file was integrated with the data provided by the Defense Manpower Data Center (DMDC) in the system used for mailing. In the notification letter mailing, the NCOA-provided address was labeled as the highest priority address in the system file and was the first address attempted. The highest priority address for each record was selected; and, for all mailings and remailings (excluding mailings with fewer than 500 pieces), address records were sorted according to first class presort postal regulations using Group 1 software[1]. Lastly, a print file[2] was created, which was used in producing the personalized cover letters.

The updating of addresses is a continuous process throughout the survey administration cycle. During survey administration, address updates are obtained in multiple ways:

▪ Beneficiaries self-reported information via telephone (using the 800-number system designated for calls regarding this survey), fax, or letter.

▪ Postal service forwarded address correction information (ACRs).

▪ Postal service returned letters or packets with out-of-date forwarding (ODFs) but with new address information affixed to the envelopes.

▪ Postal service returned letters or packets as postal non-deliverables (PNDs).

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[1] The Postal Service requires a minimum of 500 pieces of presorted mail.
[2] The print file was the file of names and addresses to be printed on the cover letters.

To obtain new address information for PNDs (if no other usable addresses are available), the records are submitted to one commercial credit bureau (Experian).

Address information received directly from a beneficiary was considered the most accurate and was awarded the highest address priority. The notification letters and reminder postcards included a toll-free telephone number as well as numbers for faxes and collect calls (for non-U.S. beneficiaries), so that beneficiaries were aware of an easy and free method of updating their own addresses as necessary. The next highest priority was address information received from the post office in response to the "Address Service Requested" legend printed on the carrier envelopes. This consisted of a photocopy of the forwarded envelope with the change of address information noted. This information was from the post office's database of address correction cards filed by people who had moved. Additionally, the post office's electronic address correction service (ACS) was used. In this instance, address corrections were received bi-weekly in electronic format and were loaded into the address database without the need for key entry.

When a letter or survey was returned PND, the associated record was labeled to reflect that it was returned PND and that the address was invalid and therefore unusable. The record was then flagged for inclusion in the next mailing. The next-in-line address was identified for use in the next mailing. Each address within a given record was used based on its assigned priority. Once all addresses had been used, the record was flagged for inclusion in the next submission to the credit bureau, prior to the next mailing or remailing. Submission to the credit bureau was a last-chance attempt to obtain updated address information.

Based on data from the final returns data set, a total of 105 beneficiaries from each subsample had insufficient address information in the address fields (for all available addresses). Any record without a usable address was sent to the credit bureau for an address search. The credit bureau returned all records to the operations contractor with updated address information, if available. Where multiple addresses were received, only the highest priority one was loaded into the system. (Credit bureau updates included the receipt date of new address information as part of the record returned to DRC, which allowed DRC to select the address with the most recent date received.) The updates were added to the mailing file and labeled as the highest priority addresses. The mailing of letters or surveys to these beneficiaries was then conducted, following the same steps as the original mailing. In accordance with the contract requirements, records for which the address was identified as PND and without a usable address were submitted to the credit bureau prior to each mailing and remailing. Any PNDs received after the cut-off date were processed in the next batch and sent to the credit bureau.

To summarize the order in which the addresses were prioritized in the mailing system, they are shown here from highest to lowest:

1. Contact from beneficiary (phone call, voice mail, fax, letter, returned survey)
2. Update from post office (ACRs, ODFs)
3. Update from NCOA
4. Update from commercial credit bureaus
5. DEERS residence address
6. DEERS unit address

Table 2.1a summarizes address sources by each of the three beneficiary categories. This table shows the source of the last address used for a sample member. The majority of valid addresses came from the DEERS database.

TABLE 2.1a

FREQUENCY OF ADDRESS SOURCES BY BENEFICIARY CATEGORY
(CHILD 1 SAMPLE N=7,933) (CHILD 2 SAMPLE N=7,932)

Address Source	Active Duty Personnel		Active Duty Family Members		Retirees and their Families		Total	
	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample
No valid address	2 0.03%	4 0.05%	52 0.66%	60 0.76%	51 0.64%	59 0.74%	105 1.32%	123 1.55%
Live Phone Call	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
ACR from PO	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 0.01%	0 0.0%	1 0.01%
Fax	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Letter Return	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
NCOA (moved address)	0 0.0%	0 0.0%	590 7.44%	642 8.09%	163 2.05%	150 1.89%	753 9.49%	792 9.98%
DEERS unit	2 0.03%	3 0.04%	254 3.20%	262 3.30%	0 0.0%	0 0.0%	256 3.23%	265 3.34%
DEERS Resident	5 0.06%	7 0.09%	4,712 59.40%	4,586 57.82%	2,070 26.09%	2,124 26.78%	6,787 85.55%	6,717 84.68%
ODF	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Credit Experian	0 0.0%	1 0.01%	11 0.14%	8 0.10%	20 0.25%	20 0.25%	31 0.39%	29 0.37%
Electronic ACR	0 0.0%	0 0.0%	0 0.0%	1 0.01%	1 0.01%	4 0.05%	1 0.01%	5 0.06%
Total	9 0.11%	15 0.19%	5,619 70.83%	5,559 70.08%	2,305 29.06%	2,358 29.73%	7,933 100.00%	7,932 100.00%

Table 2.1b summarizes the address sources for returned surveys included in the 1999 Child HCSDB data file. For the final data set, the table shows that about 484 (2.7%) of the Child 1 sample and 500 (6.3%) of the Child 2 sample consisted of completed surveys from updated sources such as the 800-number system, NCOA, and the commercial credit bureau.

TABLE 2.1b

FREQUENCY OF ADDRESS SOURCES FOR RETURNED SURVEYS
(CHILD 1 SAMPLE N=3,141) (CHILD 2 SAMPLE N=3,118)

Address Type	Frequency (n)		Percent of Returns	
	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample
DEERS residence	2,630	2,618	83.7%	84.0%
DEERS unit address	27	13	0.9%	0.4%
800-number information	44	37	1.4%	1.2%
Fax or mail	0	0	0.0%	0.0%
NCOA database	292	299	9.3%	9.6%
Commercial Credit Bureau (Experian)	5	8	0.2%	0.3%
U. S. Postal Service (ACRs and ODFs)	0	4	0.0%	0.1%
Electronic ACR	143	139	4.5%	4.5%

NOTE: If beneficiaries returned more than one completed survey, both or all surveys were included in the numbers in Table 2.1b.

Additionally, the costs associated with each of these address sources (e.g., the costs associated with doing address traces through one credit bureau) was summarized at the conclusion of the field period. Note that these are costs associated with DRC's portion of the survey administration activities and do not include any cost incurred by TMA or the Analysis Contractor in providing address information to DRC. These costs are presented in table 2.2 and include both vendor costs (to DRC) as well as DRC's labor expense, except where noted.

TABLE 2.2

COST TABLE OF ADDRESS TYPES

Address Type	Unit Cost	Aggregate Cost / Total Sample		Aggregate Cost / Returned Sample	
		Child 1	Child 2	Child 1	Child 2
DEERS residence	NSP*				
DEERS unit address	NSP*				
800-number information**	$0.62	68 / $42.16	55 / $34.10	37 / $22.94	38 / $23.56
Fax or mail	$0.64	0 / $0	2 / $1.28	0 / $0	2 / $1.28
NCOA database	$7.92/M	1,079 / $8.55	1,143 / $9.05	425 / $3.37	46 / $3.71
Commercial Credit Bureau (Experian)	$1.22	49 / $59.78	47 / $57.34	7 / $8.54	8 / $9.76
U. S. Postal Service (ACRs and ODFs)	$0.64	82 / $52.48	101 / $64.64	55 / $35.20	43 / $27.52
Electronic ACR**	$0.20	1,572 / $314.40	1,484 / $296.80	515 / $103.00	473 / $94.60

* Not separately priced. Provided to contractor by Government.

** These are line charges and postal service charges only. Personnel costs are separately priced.

E.   LETTER PROCESSING PROCEDURES

Mailings which did not include a survey were generated and printed with the "best available" address from the system used for mailing. This address may have been the address generated from the DEERS file, NCOA, commercial sources (Experian), through contact with the beneficiary (telephone, letter, or fax), or from the postal service (address corrections). Each letter was printed with a unique identifier in the address block and the lower right corner, so that the beneficiary could refer to the number if address corrections were requested by fax or phone. Letters and packets with surveys were sent via first class mail.

The procedure for mailing surveys was more complex. Prior to the production of letters, each record in the mailing was matched with an available survey identification number (survey ID). As each survey ID was assigned, it was also recorded in the system used for mailing. Cover letters printed with each beneficiary's assigned survey ID were generated and printed in survey ID order. The letters were paired with the matching survey lithocode[3], inserted into envelopes with postage-paid return envelopes enclosed, and sent via first class mail. A ten-percent quality control check was implemented to ensure that the surveys and letters contained the same survey ID. If an error

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[3] Lithocodes are the survey identification numbers printed on the survey questionnaire in a binary format, so that they can be read by the OMR scanner and converted into Arabic numbers for the data file.

was found, the packets were opened, examined, and the correct survey ID/lithocode combination was made.

F. SURVEY ADMINISTRATION TIMELINE

The HCSDB mailing process was designed so that each beneficiary with a usable address was sent up to four documents: a notification letter, a first wave survey, a reminder/thank-you postcard, and a second wave survey. If a beneficiary returned a survey during the first wave mailing, then a second wave survey was not sent. If a beneficiary was identified as deceased, that record was updated as such and no longer included in the mailing process. Also, beginning with Wave 1, active refusers (those who made an oral or written request not to participate) and beneficiaries who were permanently incapacitated, incarcerated, or ineligible for Military Health System benefits on June 1, 1999, were also excluded. In the mailing process described below and in Table 2.3, the dates cited include both the dates in which records for the mailings were selected and print files were created, and the dates when the mailings began. The packets were usually mailed from one to five days after the print file was created.

The print files for the notification letter were created on September 21 (domestic) and September 28 (foreign), 1999, and consisted of a total of 15,998 letters. These files contained letters that would be sent to all beneficiaries except those who had no known address. Those records were subsequently sent to the credit bureau Experian. The notification letters were sent to notify the beneficiaries that they were selected for the survey and to provide information to the beneficiaries regarding address-updating procedures if the letters had been forwarded or had incorrect addresses. (A sample of the pre-survey notification letter is found in Appendix B.)

After the notification letters were sent, TMA requested that the sample population be split, so that one sample received version 1 of the survey, and one sample received version 2 of the survey (described earlier in Section C). This was done prior to any further mailings being done. The two files were received from MPR on January 21, 2000.

The first wave survey mailing, for which the print files were created on February 10 and 11, 2000, consisted of 7,908 domestic and 25 foreign survey packets for the Child 1 sample and 7,903 domestic and 27 foreign survey packets for the Child 2 sample. For Wave 1, each beneficiary received a survey, a cover letter requesting that the beneficiary complete and return the survey, and a return envelope. (A sample of the Wave 1 cover letter is found in Appendix B.)

The reminder/thank-you postcard mailing (for which the print file was created on February 21, 2000) consisted of 7,908 cards for Child 1 sample and 7,903 cards for Child 2 sample with the exception of those who had been updated as deceased, ineligible, etc. The reminder/thank-you card was sent to thank the beneficiary for completing the survey and encourage the beneficiary to return the survey if a completed survey had not been returned. The reminder/thank-you card also contained address-updating procedures if the card had been forwarded or had an incorrect address. (A sample of the reminder/thank-you postcard can be found in Appendix B.)

The second wave mailing consisted of a total of 5,847 letters for Child 1 sample and 5,855 letters for Child 2 sample, for which the print files were created on March 27, 2000. The Wave 2 mailing was sent to those beneficiaries who had not returned a completed survey, excluding those who had been updated as deceased, ineligible, etc. Each beneficiary received a survey, a cover letter, and return envelope. (A sample of the Wave 2 cover letter is found in Appendix B.)

Table 2.3 summarizes the various HCSDB mailings as recorded in the system used for the mailings. The table includes the types of mailings; the dates the records were selected for inclusion in the mailings; the dates the mailings were dropped at the post office; and the quantities sent.

TABLE 2.3

MAILING TIMELINE

Mailing Type	Date of Selection		Date(s) Mailed		N Sent	
	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample
Notification Letter – domestic*	9/21/99		10/6/99		15,946	
Notification Letter – foreign*	9/28/99		10/6/99		52	
Wave 1 - domestic	2/10/00	2/10/00	2/14-2/15/00	2/14/00	7,908	7,903
Wave 1 - foreign	2/11/00	2/11/00	2/15/00	2/15/00	25	27
Reminder/Thank You	2/21/00	2/21/00	2/23/00	2/23/00	7,908	7,903
Wave 2 – domestic	3/24/00	3/27/00	3/29/00	3/29/00	5,821	5,820
Wave 2 – foreign	3/27/00	3/27/00	3/29/00	3/29/00	26	35

* Notification letters were sent prior to the sample population being split.

G. PROCESSING AND CLASSIFICATION OF INCOMING SURVEYS

Incoming survey forms were visually checked prior to scanning. At that point, surveys were separated into "completed" or "blank" groups. This year, all returned surveys also contained a bar code to enable up-to-the-minute electronic tracking of all returned surveys. The bar code was scanned at the time the survey was received to provide an electronic receipt of all returned surveys and track their status in the receiving and scanning process. Blank forms were further divided into batches according to the reason (if any) the beneficiary wrote on the returned form. A respondent's reason for returning a blank or partially completed form was recorded in the mailing system. Surveys were then optically scanned so that lithocodes could be captured and tracked. This tracking of survey IDs was used to identify whether a beneficiary returned a survey or not and to record the reason given for a blank return.

Blank forms without an explanation for their return were tracked by survey identification codes. Counts of all incoming forms were updated as they were received. All of these documents were optically scanned and edited. Surveys that were damaged or completed in ink were key entered[4]. Scanned survey questions with multiple answers were checked to ensure that the multiple answers were not due to a scanning error (i.e., the scanner erroneously picked up an erased answer as a response).

Throughout the administration of HCSDB, sample members were tracked in the mailing system and returns files when surveys were returned, when mail was returned PND, and when information was received by fax or telephone. A final disposition variable (FLAG_FIN) was developed to classify incoming surveys and to classify cases where the beneficiary did not return a survey. The disposition values and outcomes are:

- FLAG_FIN=1

  Returned survey – survey was completed and returned.

---

[4] All data captured via keying were keyed and varified, yielding an accuracy rate of 99.6%.

- FLAG_FIN=2

  Returned ineligible – survey was returned with at least one question marked and information that the beneficiary was ineligible. The information indicating ineligibility may have come by phone, fax, or the survey itself.

- FLAG_FIN=3

  Returned blank – temporarily ill or incapacitated. Survey was returned blank along with information that the beneficiary was temporarily ill or incapacitated. This corresponds to blank reason 4. These sample members were eligible.

- FLAG_FIN=4

  Returned blank – deceased. Survey was returned blank along with information that the beneficiary was deceased. These sample members were ineligible.

- FLAG_FIN=5

  Returned blank – incarcerated or permanently incapacitated. Survey was returned blank along with information that the beneficiary was incarcerated or permanently hospitalized. These sample members were ineligible.

- FLAG_FIN=6

  Returned blank – left military or divorced after 6/1/99, retired. Survey was returned blank along with information that the beneficiary left the military after 6/1/99, divorced after 6/1/99, or retired. These sample members were eligible.

- FLAG_FIN=7

  Returned blank – not eligible on 6/1/99. Survey was returned blank along with information that the beneficiary was not eligible for Military Health System Plan on 6/1/99. These sample members were ineligible.

- FLAG_FIN=8

  Returned blank – other eligible. Survey was returned blank along with a reason given by the sample member. These sample members were eligible.

- FLAG_FIN=9

  Returned blank – no reason. Survey was returned blank without an explanation. These sample members were eligible.

- FLAG_FIN=10

  No return – temporarily ill or incapacitated. Survey was not returned, beneficiary was temporarily ill or incapacitated. These sample members were eligible.

- FLAG_FIN=11

  No return – active refuser. Survey was not returned, beneficiary refused to take part in the survey. These sample members were eligible.

- FLAG_FIN=12

  No return – deceased. Survey was not returned, beneficiary deceased. These sample members were ineligible.

- FLAG_FIN=13

  No return – incarcerated or permanently incapacitated. Survey was not returned, beneficiary was incarcerated or permanently hospitalized. These sample members were ineligible.

- FLAG_FIN=14

  No return – left military or divorced after 6/1/99, retired. Survey was not returned, beneficiary left service after 6/1/99, divorced after 6/1/99, or retired. These sample members were eligible.

- FLAG_FIN=15

  No return – not eligible on 6/1/99. Survey was not returned, beneficiary was not eligible for Military Health System Plan on 6/1/99. These sample members were ineligible.

- FLAG_FIN=16

  No return – other eligible. Survey was not returned, beneficiary gave other reason for not completing the survey. These sample members were eligible.

- FLAG_FIN=17

  No return – no reason. Survey was not returned, beneficiary gave no reason.

- FLAG_FIN=18

  PND – no address remaining. All addresses were attempted, mailing was returned PND.

- FLAG_FIN=19

  PND – address remaining at the close of field. At the close of field, the last address used was found invalid, next available was not attempted.

- FLAG_FIN=20

  Original Non-Locatable – no address at start of mailing. Substantially incomplete or blank address field before the survey was administered, no mailings attempted.

- FLAG_FIN=21

  Beneficiary provided written documentation declining to participate but didn't specify a reason.

- FLAG_FIN=22

  Beneficiary indicated they were hospitalized but didn't provide any way to determine whether incapacity was temporary or permanent. Therefore, eligibility determination could not be made.

Table 2.4 documents the final disposition data of the survey sample by each beneficiary group as recorded in the system used for mailing. Some beneficiaries did not return a survey and they provided a reason why the survey was not returned (i.e., FLAG_FIN values of 3-9). Beneficiaries provided this information through various sources, including collect and 800-number calls, faxes, and letters.

TABLE 2.4

FREQUENCY (N) AND PERCENT DISTRIBUTION OF FINAL DISPOSITION OF
SURVEY SAMPLE BY BENEFICIARY GROUP [1]

Final Survey Disposition[2]	Active Duty Personnel		Active Duty Family Members		Retirees and Their Families		Total	
	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample
Returned non-blank survey	0 0.0%	1 0.1%	2,089 26.29%	1,995 25.12%	1,035 13.03%	1,106 13.92%	3,124 39.32%	3,102 39.05%
Returned ineligible	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
No return (temporarily ill, incapacitated)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Blank (temporarily ill)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Blank (deceased)	0 0.0%	0 0.0%	0 0.0%	1 0.01%	0 0.0%	0 0.0%	0 0.0%	1 0.01%
Blank (permanently ill)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Blank (left military)	0 0.0%	0 0.0%	0 0.0%	1 0.01%	0 0.0%	0 0.0%	0 0.0%	1 0.01%
Blank (ineligible for MHS)	0 0.0%	0 0.0%	4 0.05%	5 0.06%	3 0.04%	2 0.03%	7 0.09%	7 0.09%
Blank (other eligible)	0 0.0%	0 0.0%	6 0.08%	2 0.03%	1 0.01%	2 0.03%	7 0.09%	4 0.05%
Blank (no reason)	0 0.0%	0 0.0%	3 0.04%	1 0.01%	0 0.0%	2 0.03%	3 0.04%	3 0.04%
No return (active refuser)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
No return (deceased)	0 0.0%	0 0.0%	0 0.0%	1 0.01%	0 0.0%	0 0.0%	0 0.0%	1 0.01%
No return (permanently ill)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
No return (left military)	0 0.0%	0 0.0%	0 0.0%	2 0.03%	0 0.0%	1 0.01%	0 0.0%	3 0.04%
No return (ineligible MHS)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
No return (other eligible)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
No return (no reason)	7 0.09%	10 0.13%	3,282 41.31%	3,295 41.48%	1,201 15.12%	1,172 14.76%	4,490 56.51%	4,477 56.36%
PND (no address remaining)	2 0.03%	3 0.04%	51 0.64%	58 0.73%	50 0.63%	55 0.69%	103 1.30%	116 1.46%
PND (address left)	0 0.0%	0 0.0%	193 2.43%	206 2.59%	18 0.23%	20 0.25%	211 2.66%	226 2.85%
Non-locatable (no address at start of mailing)	0 0.0%	1 0.01%	0 0.0%	1 0.01%	0 0.0%	0 0.0%	0 0.0%	2 0.03%
Decline to participate	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	9 0.11%	15 0.19%	5,628 70.84%	5,568 70.10%	2,308 29.05%	2,360 29.71%	7,945 100.00%	7,943 100.00%

[1] Taken from BGCSMPL.
[2] Taken from FLAG_FIN.
NOTE: The data in this table are provided by Data Recognition Corporation. Duplicate records have not been removed.

The data in Table 2.5 presents the final disposition for all incoming surveys by another created variable: FLAG_DUP as recorded in the Returns File. Please note column percents may not total 100% due to rounding. FLAG_DUP was developed to identify beneficiaries who returned more than one survey. After the close of the field period, each survey was examined to determine whether the survey was from the first wave mailing or the second wave mailing. The data in Table 2.5 present the final disposition for all incoming surveys.

TABLE 2.5

SURVEY WAVE INDICATOR BY FINAL DISPOSITION[1]

Survey Wave Indicator	Wave 1		Wave 2		Total	
	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample	Child 1 Sample	Child 2 Sample
Returned non-blank survey	2,271 72.69%	2,240 72.21%	853 27.30%	862 27.78%	3,124 99.46%	3,102 100.00%
Returned blank (deceased)	0 0.0%	0 0.0%	0 0.0%	1 0.03%	0 0.0%	1 0.03%
Returned blank (temporarily ill, hospitalized, etc.)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Returned blank (other reasons – eligible)	1 0.03%	4 0.13%	6 0.19%	0 0.0%	0 0.0%	4 0.13%
Returned blank (no reason)	1 0.03%	0 0.0%	2 0.06%	3 0.10%	3 0.10%	3 0.10%
Returned (ineligible)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Blank (permanently ill)	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Blank (left military)	0 0.0%	1 0.03%	0 0.0%	0 0.0%	0 0.0%	1 0.03%
Blank (ineligible for MHS)	1 0.03%	0 0.0%	6 0.19%	7 0.22%	7 0.22%	7 0.22%
Decline to participate	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Total	2,274 72.39%	2,245 72.0%	867 27.60%	873 27.90%	3,141 100.00%	3,118 100.00%

[1] Taken from FLAG_DUP.

Note: This table was generated with data obtained prior to removal of any duplicate records from the file.

Chapter

3

Database

This chapter explains the process of developing the raw survey data into a final database free of inconsistencies and ready for analysis. We discuss the design of the database; cleaning, editing, and implementing the Coding Scheme; record selection; and constructing variables.

A. DATABASE DESIGN

The 1999 Child HCSDB consists of variables from various sources. When DRC delivered the file to MPR after fielding the sample, the following types of variables were present:

- DEERS information on beneficiary group, social security number, sex, age, etc.
- Sampling variables used to place beneficiaries in appropriate strata
- Questionnaire responses
- DRC information from fielding the sample, such as scan date and flags developed during the fielding to assist us in determining eligibility

MPR added the following types of variables to the database:

- Updated DEERS variables from the time of data collection to be used for post-stratification
- Coding scheme flags
- Constructed variables for analysis
- Weights

In addition, MPR updated and cleaned the questionnaire responses using the coding scheme tables found in Appendix D. This year the final file does not include both the original and recoded responses, but only the cleaned responses; this will help users to avoid using an uncleaned response for analysis. We structured the final database so that all variables from a particular source are grouped by position. Table 3.1 lists all variables in the database by source and briefly describes these sources. For specific information on variable location within the database, refer to the "1999 Health Care Survey of DoD Beneficiaries: Child Codebook and User's Guide."

1. Data Sources

a. DEERS

DMDC provided the sampling frame to MPR prior to the selection of the sample. DEERS information such as sex, date of birth, and service are retained in the database; this data is current as of the time of sample selection.

b.   Sampling Variables

MPR developed variables during the sample selection procedure that were instrumental in placing beneficiaries in appropriate strata. Many of the variables are retained on the database.

c.   Questionnaire Responses

These variables represent the cleaned values for all responses to the questionnaire. The original values scanned in by DRC are cleaned and recoded as necessary to ensure that responses are consistent throughout the questionnaire. The coding scheme tables found in Appendix D are the basis for insuring data quality.

d.   Survey Fielding Variables

In the process of fielding the survey, DRC created a number of variables that we retain in the database. Certain of these variables, information that came in by phone, for example, assist us in determining eligibility.

e.   Coding Scheme Flags

Each table of the Coding Scheme (see Appendix D) has a flag associated with it that indicates the pattern of original responses and any recodes that were done. For example, the table for Note 5 has a flag N5.

f.   Updated DEERS data

In April 2000, Standard Technology, Inc. (STI) provided MPR with updated DEERS information for the sample so that information on TRICARE enrollment and geographic location would be current as of the time of data collection.

g.   Constructed Variables

MPR constructed additional variables that were used in the child report cards. Often these variables were regroupings of questionnaire responses or the creation of a binary variable to indicate whether or not a TRICARE standard was met. Complete information on each constructed variable is found in section 3.D.

h.   Weights

MPR developed weights for each record in the final database. Weights are required for the following reasons:

- To compensate for variable probabilities of selection
- To adjust for differential response rates
- To improve the precision of survey-based estimates through post-stratification

Weighting procedures are discussed in section 3.E.

TABLE 3.1

VARIABLES IN THE 1999 CHILD HCSDB DATA FILE

Name	Content/Topic
SAMPLING VARIABLES	
MPRID	Unique MPR identifier
MPCSMPL	Sampling rank
SVCSMPL	Sampling service
SEXSMPL	Sampling sex
STRATUM	Sampling stratum
NHFF	Stratum sample size
DEERS VARIABLES	
MSTATUS	Marital status
RACE	Race/Ethnicity
SEX	Sex
SVC	Service
GROUP	Group code
DDS	DEERS Dependent Suffix
UPDATED DEERS AND SAMPLING VARIABLES	
ZAGE_D1	Age as of December 1, 1999
ZACV	Alternate Care Value
ZCATCHID	DMIS Catchment/NonCatchment ID
ZELIG	Eligibility Flag
ZENRID	Enrollment DMIS ID
ZPCMD	PCM Derived
ZSTATUS	Status of Sponsor
ZTYPE	Record Type
BFGROUPP	Beneficiary group from DEERS file December 1, 1999
AGEGROUP	Age group as of December 1, 1999
ENGROUPP	Enrollment group as of December 1, 1999
CACSMPL	Catchment Area
REGSMPL	Region
POSTSTR	Post-Stratification Identifier
CELLP	Catchment Area Post-Cell
FNSTATUS	Final Status
KEYCOUNT	Number of key questions answered
QUESTIONNAIRE RESPONSES	
C99C01	Which health plan did you use for all or most of your child's health care in the last 12 months?

Name	Content/Topic
C99C02	Is your child currently enrolled in TRICARE Prime?
C99C03	Out of the last 12 months, how many months in a row was your child enrolled in TRICARE Prime?
C99C04	Do you have one person you think of as your child's personal doctor or nurse?
C99C05	With the choices your child's health plan gave you, how much of a problem, if any, was it to get a personal doctor or nurse for your child you are happy with?
C99C06	In the last 12 months, when your child went to his or her personal doctor or nurse's office or clinic, how often did the doctor or nurse talk with you about how your child is feeling, growing, or behaving?
C99C07	How would you rate your child's personal doctor or nurse now?
C99C08	Does your child have a TRICARE primary care manager?
C99C09	Do you know the name of your child's TRICARE primary care manager?
C99C10	In the last 12 months, how much of a problem was it for your child to see his or her TRICARE primary care manager?
C99C11	Does your child's TRICARE primary care manager work in a military treatment facility or in a civilian treatment facility?
C99C12	In the last 12 months, did you or a doctor think your child needed to see a specialist?
C99C13	In the last 12 months, how much of a problem, if any, was it to get a referral to a specialist that your child needed to see?
C99C14	In the last 12 months, did your child see a specialist?
C99C15	How would you rate your child's specialist?
C99C16	In the last 12 months, was the specialist your child saw most often the same doctor as your child's personal doctor?
C99C17	In the last 12 months, did you call a doctor's office or clinic during regular office hours to get help or advice for your child?
C99C18	In the last 12 months, when you called during regular office hours, how often did you get the help or advice you needed for your child?
C99C19	In the last 12 months, did you make any appointments for your child with a doctor or other health provider for regular or routine health care?
C99C20	In the last 12 months, how often did your child get an appointment for regular or routine health care as soon as you wanted?
C99C21	In the last 12 months, how many days did your child usually have to wait between making an appointment for regular or routine care and actually see a provider?
C99C22	In the last 12 months, did your child have an illness or injury that needed care right away from a doctor's office, clinic, or emergency room?
C99C23	In the last 12 months, when your child needed care right away for an illness or injury, how often did your child get care as soon as you wanted?
C99C24	In the last 12 months, how long did your child usually have to wait between trying to get care and actually seeing a provider for an illness or injury?
C99C25	In the last 12 months, did your child need an appointment for well-patient care, such as a physical exam or check-up?
C99C26	In the last 12 months, when your child needed an appointment for well-patient care, how often did your child get an appointment as soon as you wanted?

Name	Content/Topic
C99C27	In the last 12 months, when your child needed an appointment for well-patient care, how long did your child have to wait between trying to get care and actually seeing a provider?
C99C28	In the last 12 months, how many times did your child go to an emergency room?
C99C29	In the last 12 months (not counting times your child went to an emergency room) how many times did your child go to a doctor's office or clinic?
C99C30	In the last 12 months, how much of a problem, if any, was it to get care for your child that you or a doctor believed necessary?
C99C31	In the last 12 months, how much of a problem, if any, were delays in your child's health care while you waited for approval from your child's health plan?
C99C32	In the last 12 months, how often did your child wait in the doctor's office or clinic more than 30 minutes past the appointment time to see the person your child went to see?
C99C33	In the last 12 months, how often did office staff at your child's doctor's office or clinic treat you and your child with courtesy and respect?
C99C34	In the last 12 months, how often were office staff at your child's doctor's office or clinic as helpful as you thought they should be?
C99C35	In the last 12 months, how often did your child's doctors or other health providers listen carefully to you?
C99C36	In the last 12 months, how often did your child's doctors or other health providers explain things in a way you could understand?
C99C37	In the last 12 months, how often did your child's doctors or other health providers show respect for what you had to say?
C99C38	Is your child old enough to talk with doctors about his or her health care?
C99C39	In the last 12 months, how often did doctors or other health providers explain things in a way your child could understand?
C99C40	In the last 12 months, how often did doctors or other health providers spend enough time with your child?
C99C41	How would you rate all your child's health care?
C99C42	In the last 12 months, what type of facility did your child go to most often for health care?
C99C43	In the last 12 months, how often did it take you more than 30 minutes to travel to the facility where your child visits his or her primary care manager?
C99C44	In the last 12 months, did you or anyone else send in any claims for your child to your child's health plan?
C99C45	In the last 12 months, how often did your child's health plan handle your child's claims in a reasonable time?
C99C46	In the last 12 months, how often did your child's health plan handle your child's claims correctly?
C99C47	In the last 12 months, before your child went for care, how often did your child's health plan make it clear how much you would have to pay?
C99C48	In the last 12 months, did you look for any information in written materials from your child's health plan?
C99C49	In the last 12 months, how much of a problem, if any, was it to find or understand information in the written materials?
C99C50	In the last 12 months, did you call the health plan's customer service to get information or help for your child?

Name	Content/Topic
C99C51	In the last 12 months, how much of a problem, if any, was it to get the help you needed when you called your child's health plan's customer service?
C99C52	In the last 12 months, have you called or written your child's health plan with a complaint or problem?
C99C53	How long did it take for your child's health plan to resolve your complaints?
C99C54	Was your complaint or problem settled to your satisfaction?
C99C55	In the last 12 months, did you have any experiences with paperwork for your child's health plan?
C99C56	In the last 12 months, how much of a problem, if any, did you have with paperwork for your child's health plan?
C99C57	How would you rate your child's health plan now?
C99C58A	What other health plan(s) is your child currently covered by - None?
C99C58B	What other health plan(s) is your child currently covered by - TRICARE Prime?
C99C58C	What other health plan(s) is your child currently covered by - CHAMPUS supplemental?
C99C58D	What other health plan(s) is your child currently covered by - Civilian health plan?
C99C58E	What other health plan(s) is your child currently covered by - Medicaid?
C99C58F	What other health plan(s) is your child currently covered by - Other?
C99C59	If your child is currently enrolled in TRICARE Prime, how likely are you go disenroll him or her for a different type of health plan in the next 12 months?
C99C60A	TRICARE Prime makes it hard to get the health care services my child needs.
C99C60B	TRICARE Prime makes it hard for my child to see the doctor I prefer.
C99C60C	TRICARE Prime's health benefits do not meet my child's needs.
C99C60D	TRICARE Prime provides high quality health care.
C99D61	In general, how would you rate your child's overall health now?
C99D62	Does your child currently need or use medicine prescribed by a doctor (other than vitamins)?
C99D62A	Is this because of ANY health condition that has lasted or is expected to last for at least 12 months?
C99D63	Does your child need or use more medical, mental health, or educational services than is usual for most children the same age?
C99D63A	Is this because of ANY health condition that has lasted or is expected to last for at least 12 months?
C99D64	Is your child limited or prevented in any way in his or her ability to do the things most children of the same age can do?
C99D64A	Is this because of ANY health condition that has lasted or is expected to last for at least 12 months?
C99D65	Does your child need to get special therapy, such as physical, occupational, or speech therapy?
C99D65A	Is this because of ANY health condition that has lasted or is expected to last for at least 12 months?
C99D66	Does your child have any kind of emotional, developmental, or behavioral problem for which he or she needs or gets treatment or counseling?

Name	Content/Topic
C99D66A	Is this because of ANY health condition that has lasted or is expected to last for at least 12 months?
C99D67	Does your child have a condition that was not mentioned?
C99D67A	Has this condition lasted or is it expected to last for at least 12 months?
C99D67B	Does your child need more services or medical care than the average child because of this condition?
C99D67C	Does your child take prescription medicine because of this condition?
C99D67D	Please describe the condition (name of condition or how it affects child)
C99D68	What is your child's age now?
C99D68A	What is your child's age now (grid)?
GRID68	Raw grid value Q 68
C99D69	Is your child male or female?
C99D70	Is your child of Hispanic or Latino origin or descent?
C99D71A	What is your child's race - White?
C99D71B	What is your child's race - Black or African American?
C99D71C	What is your child's race - Asian?
C99D71D	What is your child's race - Native Hawaiian or other Pacific Islander?
C99D71E	What is your child's race - American Indian or Alaska Native?
C99D72	What is your age now?
C99D73	Are you male or female?
C99D74A	What is the highest grade or level of school that you have completed - 8th grade or less?
C99D74B	What is the highest grade or level of school that you have completed - Some high school, but did not graduate?
C99D74C	What is the highest grade or level of school that you have completed - High school graduate or GED?
C99D74D	What is the highest grade or level of school that you have completed - Some college or 2-year degree?
C99D74E	What is the highest grade or level of school that you have completed - 4-year college graduate?
C99D74F	What is the highest grade or level of school that you have completed - More than 4-year college degree?
C99D75	How are you related to the child?
C99E61	In general, how would you rate your child's overall health now?
C99E62	Does your child currently need or use medicine prescribed by a doctor (other than vitamins)?
C99E62A	Is this because of ANY health condition that has lasted at least 12 months?
C99E62B	Is this because of ANY health condition that you expect to last for at least 12 months?
C99E63	Does your child need or use more medical, mental health, or educational services than is usual for most children the same age?
C99E63A	Is this because of ANY health condition that has lasted at least 12 months?
C99E63B	Is this because of ANY health condition that you expect to last for at least 12 months?

Name	Content/Topic
C99E64	Is your child limited or prevented in any way in his or her ability to do the things most children of the same age can do?
C99E64A	Is this because of ANY health condition that has lasted at least 12 months?
C99E64B	Is this because of ANY health condition that you expect to last for at least 12 months?
C99E65	Does your child need to get special therapy, such as physical, occupational, or speech therapy?
C99E65A	Is this because of ANY health condition that has lasted at least 12 months?
C99E65B	Is this because of ANY health condition that you expect to last for at least 12 months?
C99E66	Does your child have any kind of emotional, developmental, or behavioral problem for which he or she needs or gets treatment or counseling?
C99E66A	Is this because of ANY health condition that has lasted at least 12 months?
C99E66B	Is this because of ANY health condition that you expect to last for at least 12 months?
C99E67	Does your child have a condition that was not mentioned?
C99E67A	Has this condition lasted or is it expected to last for at least 12 months?
C99E67B	Does your child need more services or medical care than the average child because of this condition?
C99E67C	Does your child take prescription medicine because of this condition?
C99E67D	Please describe the condition (name of condition or how it affects child)
C99E68	Does your child need any extra kind of help in order to play or do school activities most children the same age do?
C99E68A	Is this because of ANY health condition that has lasted at least 12 months?
C99E68B	Is this because of ANY health condition that you expect to last for at least 12 months?
C99E69	What is your child's age now?
C99E69A	What is your child's age now (grid)?
C99E70	Is your child male or female?
C99E71	Is your child of Hispanic or Latino origin or descent?
C99E72A	What is your child's race - White?
C99E72B	What is your child's race - Black or African American?
C99E72C	What is your child's race - Asian?
C99E72D	What is your child's race - Native Hawaiian or other Pacific Islander?
C99E72E	What is your child's race - American Indian or Alaska Native?
C99E73	What is your age now?
C99E74	Are you male or female?
SSEX	Sponsor Sex
C99E75A	What is the highest grade or level of school that you have completed - 8th grade or less?
C99E75B	What is the highest grade or level of school that you have completed - Some high school, but did not graduate?
C99E75C	What is the highest grade or level of school that you have completed - High school graduate or GED?

Name	Content/Topic
C99E75D	What is the highest grade or level of school that you have completed - Some college or 2-year degree?
C99E75E	What is the highest grade or level of school that you have completed - 4-year college graduate?
C99E75F	What is the highest grade or level of school that you have completed - More than 4-year college degree?
C99E76	How are you related to the child?
DRC SURVEY FIELDING VARIABLES	
FLAG_FIN	Final disposition
REFUSE	Refused
DUPFLAG	Multiple response indicator
BLKREAS	Reason Survey Returned Blank
FORM	Child Form #
CODING SCHEME FLAGS AND COUNTS	
N1	Coding Scheme flag for Note 1
N2	Coding Scheme flag for Note 2
N3	Coding Scheme flag for Note 3
N4	Coding Scheme flag for Note 4
N5	Coding Scheme flag for Note 5
N6	Coding Scheme flag for Note 6
N7	Coding Scheme flag for Note 7
N8	Coding Scheme flag for Note 8
N9	Coding Scheme flag for Note 9
N10	Coding Scheme flag for Note 10
N11	Coding Scheme flag for Note 11
N12	Coding Scheme flag for Note 12
N13	Coding Scheme flag for Note 13
N14	Coding Scheme flag for Note 14
N15	Coding Scheme flag for Note 15
N16	Coding Scheme flag for Note 16
N17	Coding Scheme flag for Note 17
N18	Coding Scheme flag for Note 18
N19	Coding Scheme flag for Note 19
N20	Coding Scheme flag for Note 20
N21	Coding Scheme flag for Note 21
N22	Coding Scheme flag for Note 22
N23	Coding Scheme flag for Note 23
N24	Coding Scheme flag for Note 24

Name	Content/Topic
N25	Coding Scheme flag for Note 25
N26	Coding Scheme flag for Note 26
N26A	Coding Scheme flag for Note 26A
N27	Coding Scheme flag for Note 27
N27A	Coding Scheme flag for Note 27A
N28	Coding Scheme flag for Note 28
N28A	Coding Scheme flag for Note 28A
N29	Coding Scheme flag for Note 29
N29A	Coding Scheme flag for Note 29A
N30	Coding Scheme flag for Note 30
N30A	Coding Scheme flag for Note 30A
N31	Coding Scheme flag for Note 31
N31A	Coding Scheme flag for Note 31A
N32	Coding Scheme flag for Note 32
N32A	Coding Scheme flag for Note 32A
N33	Coding Scheme flag for Note 33
N33A	Coding Scheme flag for Note 33A
MISS_1	Count of skip pattern violations
MISS_4	Count of incomplete grid errors
MISS 5	Count of scalable response of "don't know" or "not sure"
MISS_6	Count of not applicable/valid skips
MISS_7	Count of out-of-range errors
MISS_8	Count of multiple response errors
MISS_9	Count of no response (invalid skip)
MISS_TOT	Total number of missing responses
CONSTRUCTED VARIABLES	
XREGION	Beneficiary's regional assignment (12 regions and unassigned) (see page 36)
SUPREGA	Super Region as of Dec 1, 1999 (3 regions and missing, see page 37)
XENRLLMT	Beneficiary's enrollment status in TRICARE Prime (see page 37)
XENR_PCM	TRICARE Enrollment by PCM type (see page 38)
XINS_COV	Insurance Coverage (see page 38)
KCIVINS	Beneficiary covered by civilian insurance (see page 38)
KDISENRL	Intention to disenroll, coded as binary form 1 / 2 (see page 39)
KMILWAT1	Waited less than 4 weeks for well-patient visit at military facility, coded in binary form 1 / 2 (see page 39)
KCIVWAT1	Waited less than 4 weeks for well-patient visit at civilian facility, coded in binary form 1 / 2 (see page 39)

Name	Content/Topic
KMILOFFC	Waited less than 30 minutes at military facility, coded in binary form 1 / 2 (see page 39)
KCIVOFFC	Waited less than 30 minutes at civilian facility, coded in binary form 1 / 2 (see page 39)
KBGPRB1	Big problem getting referrals to a specialist coded in binary form 1 / 2 (see page 39)
KBGPRB2	Big problem getting necessary care coded in binary form 1 / 2 (see page 39)
KMILOP99	Outpatient visits to military facility (see page 41)
KCIVOP99	Outpatient visits to civilian facility (see page 41)
XBNFGRP	Constructed beneficiary group (see page 38)
WEIGHTS	
BWT99	Base-sample weight
WRWT99	Final survey weight
WRWT1	Replicated/Jackknife weight 1
WRWT2	Replicated/Jackknife weight 2
WRWT3	Replicated/Jackknife weight 3
WRWT4	Replicated/Jackknife weight 4
WRWT5	Replicated/Jackknife weight 5
WRWT6	Replicated/Jackknife weight 6
WRWT7	Replicated/Jackknife weight 7
WRWT8	Replicated/Jackknife weight 8
WRWT9	Replicated/Jackknife weight 9
WRWT10	Replicated/Jackknife weight 10
WRWT11	Replicated/Jackknife weight 11
WRWT12	Replicated/Jackknife weight 12
WRWT13	Replicated/Jackknife weight 13
WRWT14	Replicated/Jackknife weight 14
WRWT15	Replicated/Jackknife weight 15
WRWT16	Replicated/Jackknife weight 16
WRWT17	Replicated/Jackknife weight 17
WRWT18	Replicated/Jackknife weight 18
WRWT19	Replicated/Jackknife weight 19
WRWT20	Replicated/Jackknife weight 20
WRWT21	Replicated/Jackknife weight 21
WRWT22	Replicated/Jackknife weight 22
WRWT23	Replicated/Jackknife weight 23
WRWT24	Replicated/Jackknife weight 24
WRWT25	Replicated/Jackknife weight 25
WRWT26	Replicated/Jackknife weight 26

Name	Content/Topic
WRWT27	Replicated/Jackknife weight 27
WRWT28	Replicated/Jackknife weight 28
WRWT29	Replicated/Jackknife weight 29
WRWT30	Replicated/Jackknife weight 30
WRWT31	Replicated/Jackknife weight 31
WRWT32	Replicated/Jackknife weight 32
WRWT33	Replicated/Jackknife weight 33
WRWT34	Replicated/Jackknife weight 34
WRWT35	Replicated/Jackknife weight 35
WRWT36	Replicated/Jackknife weight 36
WRWT37	Replicated/Jackknife weight 37
WRWT38	Replicated/Jackknife weight 38
WRWT39	Replicated/Jackknife weight 39
WRWT40	Replicated/Jackknife weight 40

2.   Variable Naming Conventions

To preserve continuity with survey data from previous years, MPR followed the same variable naming conventions used for the 1996, 1997, 1998 and 1999 Adult survey data with a few exceptions. Variable naming conventions for the 1999 Child HCSDB are shown in Table 3.2. The suffix "__O" will be used to distinguish the original version of the variable from the recoded version. Recoded variables will *not* have the suffix "__R". The public use files for the child survey will contain only recoded variables.

3.   Missing Value Conventions

The 1999 conventions for missing variables are the same as the 1999 Adult HCSDB conventions. All missing value conventions used in the 1999 HCSDB are shown in Table 3.3

TABLE 3.2

NAMING CONVENTIONS FOR 1999 CHILD HCSDB VARIABLES
(VARIABLES REPRESENTING SURVEY QUESTIONS)

1st Character: Survey Type	2nd – 3rd Characters: Survey Year	4th Character	5th – 6th Characters: Question #	Additional Characters: Additional Information
C= Health Beneficiaries (17 and Younger, child questionnaire)	99	C indicates questions which are the same for version 1 and version 2. D/E are used to differentiate between version 1 and version 2.	01 to 76	A to L are used to label responses associated with a multiple response question

(Constructed Variables)

1st Characters: Variable Group	Additional Characters: Additional Information
N=Coding scheme notes	Number referring to Note, e.g., N2
X=Constructed independent variable	Descriptive text, e.g., XENRLLMT
K=Constructed dependent variables	Descriptive text, e.g., KMILOP99 (total number of outpatient visits to military facility)
Z=Post stratification variable	Descriptive text, e.g., ZAGE_D1 (age as of 12/1/99)

TABLE 3.3

CODING OF MISSING DATA AND "NOT APPLICABLE" RESPONSES

ASCII or Raw Source Data	Edited and Cleaned SAS Data	Description
Numeric	Numeric	
-9	.	No response
-8	.A	Multiple response error
-7	.O	Out of range error
-6	.N	Not applicable or valid skip
-5	.D	Scalable response of "Don't know" or "Not sure"
-4	.I	Incomplete grid error
-1	.C	Question should have been skipped, not answered
	.B	No survey received

B. CLEANING AND EDITING

Data cleaning and editing procedures ensure that the data are free of inconsistencies and errors. Standard edit checks include the following:

- Checks for multiple surveys returned for any one person
- Checks for multiple responses to any question that should have one response
- Range checks for appropriate values within a single question
- Logic checks for consistent responses throughout the questionnaire

We computed frequencies and cross tabulations of values at various stages in the process to verify the accuracy of the data. Data editing and cleaning proceeded in the following way:

1. Scan Review

DRC spot checked the scanned results from the original survey to verify the accuracy of the scanning process and made any necessary corrections by viewing the returned survey.

2.   Additional DRC Editing and Coding

In preparing the database for MPR, DRC used variable names and response values provided by MPR in the annotated questionnaires (see Appendix A). DRC delivered to MPR a database in SAS format. In this database, any questions with no response were encoded with a SAS missing value code of '.'. Also, as part of the scanning procedure, DRC entered the SAS missing value of '.A' for any question with multiple responses where a single response was required. Multiple column grids that were not filled in completely were given the SAS missing value of '.I'; there were two exceptions to this rule:

- If there was a response in the right column(s) and none in the left column(s), the field was zero-filled rather than coded as an incomplete grid

- If there was a response in the left column(s) and none in the right column(s), the field was right-adjusted and then zero-filled rather than coded as an incomplete grid

3.   Duplicate or Multiple Surveys

At this stage, DRC delivered to MPR a file containing one record for every beneficiary in the sample, plus additional records for every duplicate survey or multiple surveys received from any beneficiary. These duplicates and multiples were eliminated during record selection, and only the most complete questionnaire in the group was retained in the final database. Record selection is discussed in Section 3.D.

4.   Removal of Sensitive or Confidential Information

The file that MPR received from DRC contained sensitive information such as social security number (SSN). Any confidential information was removed from the file. Each beneficiary had already been given a generic ID (MPRID) substitute during sample selection, the MPRID was retained as a means to uniquely identify each individual.

5.   Initial Frequencies

MPR computed frequencies for all fields in the original data file. These tabulations served as a reference for the file in its original form and allowed comparison to final frequencies from previous years, helping to pinpoint problem areas that needed cleaning and editing. MPR examined these frequencies and cross-tabulations, using the results to adapt and modify the cleaning and editing specifications as necessary.

6.   Data Cleaning and Recoding of Variables

MPR's plan for data quality for both versions of the child questionnaire is found in the 1999 Child Coding Scheme. It contains detailed instructions for all editing procedures used to correct data inconsistencies and errors. The coding scheme tables are found in Appendix D. These tables outline in detail the approach for recoding self-reported fields, doing range checks, logic checks, and skip pattern checks to insure that responses are consistent throughout the questionnaire. The Coding Scheme tables specify all possible original responses and any recoding, also indicating if backward coding or forward coding was used. Every skip pattern is assigned a note number shown in the annotated questionnaire (Appendix A). This note number defines the flag (for example, the Note 5 flag is N5) that is set to indicate the pattern of the original responses and any recoding. Thus, if the value of N5 is 2, the reader can look at line 2 in the Note 5 table for the original and recoded response values.

The SAS program implementing the coding scheme is found in Appendix D.

a. **Skip Pattern Checks**

At several points in the survey, the respondent should skip certain questions. If the response pattern is inconsistent with the skip pattern, each response in the series will be checked to determine which are most accurate, given the answers to other questions. Questions that are appropriately skipped were set to the SAS missing value of '.N'. Inconsistent responses, such as answering questions that should be skipped or not answering questions that should be answered, were examined for patterns that could be resolved. Frequently, responses to subsequent questions provide the information needed to infer the response to a question that was left blank. 1999 Child Coding Scheme (see Appendix D) specifically addresses every skip pattern and shows the recoded values for variables within each pattern; we back coded and/or forward coded to ensure that all responses are consistent within a sequence.

b. **Missing Values**

DRC initially encoded any question with missing responses to a SAS missing value code of '.'. After verifying skip patterns, MPR recoded some of these responses to reflect valid skips (SAS missing value code of '.N'). The complete list of codes for types of missing values such as multiple responses, incomplete grids, and questions that should not have been answered is shown in Table 3.3.

Occasionally, missing questionnaire responses can be inferred by examining other responses. For example, if a respondent fails to answer Question 19 regarding appointments made by sponsors for their child for regular or routine care, but answers Questions 20 about how often their child got an appointment for regular or routine care as soon as they wanted, we can reason that they did make an appointment in the past 12 months. Using this technique, we successfully recoded some missing questionnaire responses to legitimate responses.

c. **Multiple Response Errors**

If a respondent gives more than one answer to a question that should have only one answer, the response to that question was generally coded with a SAS missing value of '.A'. For certain questions, however, we used the greater or greatest value as the response. For example, if there was more than one response to the question about the highest education level obtained, we would deduce that the higher (or highest) level is the accurate response.

Using an approach similar to that used for missing values, we examined other questionnaire responses in an attempt to infer what the respondent intended for those questions with multiple marks. For example, if there are multiple responses to Question 17 "In the last 12 months, did you call a doctor's office or clinic during regular office hours to get help or advice for your child?" and the response to Question 18 indicates that the respondent usually got help or advice they needed for their child, we assume that the response to Question 17 should have been yes.

7. **Quality Assurance**

MPR created an edit flag for each Coding Scheme table that indicates what, if any, edits were made in the cleaning and editing process. This logic was also used in previous years; variables such as N5 (see Appendix D) indicate exactly what pattern of the Coding Scheme was followed for a particular set of responses. These edit flags have a unique value for each set of original and recoded values, allowing us to match original values and recoded values for any particular sequence.

In order to validate the editing and cleaning process, MPR prepared cross-tabulations between the original variables and the recoded variables with the corresponding edit flag. This revealed any discrepancies that needed to be addressed. In addition, we compared unweighted frequencies of each variable with the frequencies from the original file to verify that each variable was accurately recoded. MPR reviewed these tabulations for each variable in the survey. If necessary, the earlier

edit procedures were modified and the Coding Scheme program rerun. The resulting file was clean and ready for weighting adjustments and constructed variables.

C. RECORD SELECTION

To select final records, we first defined a code that classifies each sampled beneficiary as to his/her final response status. To determine this response status, we used postal delivery information provided by DRC for each sampled beneficiary. This information is contained in the FLAG_FIN variable which is described in Table 3.4

TABLE 3.4

FLAG_FIN VARIABLE

Value	Questionnaire Return Disposition	Reason/Explanation Given	Eligibility
1	Returned survey	Completed and returned	Eligible
2	Returned ineligible	Returned with at least one question marked and information that the beneficiary was ineligible	Ineligible
3	Returned blank	Information sent that beneficiary is temporarily ill or incapacitated	Eligible
4	Returned blank	Information sent that beneficiary is deceased	Ineligible
5	Returned blank	Information sent that beneficiary is incarcerated or permanently incapacitated	Ineligible
6	Returned blank	Information sent that beneficiary left military, or divorced after 6/1/99, or retired	Eligible
7	Returned blank	Information sent that beneficiary was not eligible on 6/1/99	Ineligible
8	Returned blank	Blank form accompanied by reason for not participating	Eligible
9	Returned blank	No reason given	----
10	No return	Temporarily ill or incapacitated. Information came in by phone	Eligible
11	No return	Active refuser. Information came in by phone	Eligible
12	No return	Deceased. Information came in by phone	Ineligible
13	No return	Incarcerated or permanently incapacitated. Information came in by phone	Ineligible
14	No return	Left military or divorced after 6/1/99, or retired. Information came in by phone	Eligible
15	No return	Not eligible on 6/1/99. Information came in by phone	Ineligible
16	No return	Other eligible. Information came in by phone	Eligible
17	No return	No reason	---
18	PND	No address remaining	---
19	PND	Address remaining at the close of field	---
20	Original Non-Locatable	No address at start of mailing	---
21	No return or returned blank	Written documentation declining participation, no reason given	Eligible
22	No return or returned blank	Hospitalized but no indication if temporary or permanent	---

Using the above variables in Table 3.4, we classified all sampled beneficiaries into four groups:

- **Group 1**: Eligible, Questionnaire Returned. Beneficiaries who were eligible for the survey and returned a questionnaire with at least one question answered (FLAG_FIN = 1)

- **Group 2:** Eligible, Questionnaire Not Returned (or returned blank). Beneficiaries who did not complete a questionnaire but who were determined to be eligible for military health care on June 1, 1999, that is, not deceased, not incarcerated, and not permanently hospitalized (FLAG_FIN = 3, 6, 8, 10, 11, 14, 16, 21)

- **Group 3:** Ineligible Beneficiaries who were ineligible because of death, institutionalization, divorce, or no longer being in the MHS as of June 1, 1999 (FLAG_FIN = 2, 4, 5, 7, 12, 13, 15)

- **Group 4:** Eligibility Unknown. Beneficiaries who did not complete a questionnaire and for whom survey eligibility could not be determined (FLAG_FIN = 9, 17, 18, 19, 20, 22)

Group 1 was then divided into two subgroups according to the number of survey items completed (including legitimate skip responses):

- G1-1. Complete Questionnaire Returned
- G1-2. Incomplete Questionnaire Returned

G1-1 consists of eligible respondents who answered "enough" questions to be classified as having completed the questionnaire. G1-2 consists of eligible respondents who answered only a few questions. To determine if a questionnaire is complete, 35 or 36 key questions were chosen depending on questionnaire versions: Version 1 with 35 items and Version 2 with 36 items. These key questions were adapted from the complete questionnaire rule for the CAHPS 2.0. The key questions are: 1, 2, 4,8, 12, 17, 19, 22, 25, 28, 29, 44, 48, 50, 52, 55, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, (and 76 for Version 2). If seventeen or more of these key items are completed, then the questionnaire can be counted as complete.

Furthermore, we also subdivided Group 4 into the following:

- G4-1 for Locatable-blank return/no reason or no return/no reason (FLAG_FIN = 9, 17,22)
- G4-2 for Nonlocatable-postal nondeliverable/no address, postal nondeliverable/had address, or original nonlocatable (FLAG_FIN = 18, 19, 20).

With this information, we can calculate the location rate (see Section 4.A).

With a code (FNSTATUS) for the final response/eligible status, we classified all sampled beneficiaries using the following values of FNSTATUS:

- 11 for G1-1
- 12 for G1-2
- 20 for Group 2
- 30 for Group 3
- 41 for G4-1
- 42 for G4-2

There were 226 duplicate questionnaires in the data set DRC delivered. All duplicates were classified into one of the above six groups. We then retained the one questionnaire for each beneficiary that had the most "valid" information for the usual record selection process. For example, if two returned questionnaires from the same beneficiary have FNSTATUS code values of 11, 12, 20, 41, or 42, we retained the questionnaire with the smaller value.

However, if one of a pair of questionnaires belongs to Group 3 (FNSTATUS = 3, i.e., ineligible), then we regarded the questionnaire as being ineligible.

Only beneficiaries with FNSTATUS = 11 were retained. All other records were dropped. We retained 6,190 eligible respondents, 39 percent of the total attempted 1999 questionnaires.

D. CONSTRUCTED VARIABLES

One of the most important aspects of database development is the formation of constructed variables and scale variables to support analysis. Constructed variables are formed when no single question in the survey defines the construct of interest. In Table 3.1 there is a list of all constructed variables for 1999 along with the page reference where complete descriptions are found. Each constructed variable is discussed in this section and the relevant piece of SAS code is shown. All SAS programs can be found in Appendix G.

1. Demographic Variables

a. Region (XREGION)

Catchment area codes (CACSMPL) are used to classify beneficiaries into specific regions. The regions are defined as follows:

1 = Northeast

2 = Mid-Atlantic

3 = Southeast

4 = Gulfsouth

5 = Heartland

6 = Southwest

7,8 = Central

9 = Southern California

10 = Golden Gate

11 = Northwest

12 = Hawaii

16 = Alaska

. = Unassigned (CACSMPL = 9999)

For the purposes of our analysis, Region 7 and Region 8 were combined.

```
/* XREGION -HEALTH CARE REGIONS */

IF CACSMPL IN (0035, 0036, 0037, 0066, 0067, 0068, 0069, 0081, 0086, 0100,
            0123, 0306, 0310, 0321, 0326, 0330, 0385, 0413, 9901)
            THEN XREGION= 1;
ELSE IF CACSMPL IN (0089, 0090, 0091, 0092, 0120, 0121, 0122, 0124, 0335,
            0432, 0433, 9902)
            THEN XREGION= 2;
ELSE IF CACSMPL IN (0039, 0041, 0045, 0046, 0047, 0048, 0049, 0050, 0051,
            0101, 0103, 0104, 0105, 0337, 0356, 0422, 9903)
            THEN XREGION= 3;
ELSE IF CACSMPL IN (0001, 0002, 0003, 0004, 0038, 0042, 0043, 0073, 0074,
```

```
              0107, 0297, 7139, 9904)
              THEN XREGION= 4;
     ELSE IF CACSMPL IN (0055, 0056, 0060, 0061, 0095, 9905)
              THEN XREGION= 5;
     ELSE IF CACSMPL IN (0013, 0062, 0064, 0096, 0097, 0098, 0109, 0110, 0112,
              0113, 0114, 0117, 0118, 0338, 0363, 0364, 0365, 0366, 9906)
              THEN XREGION= 6;
     ELSE IF CACSMPL IN (0008, 0009, 0010, 0079, 0083, 0084, 0085, 0108, 9907)
              THEN XREGION= 7;
     ELSE IF CACSMPL IN (0031, 0032, 0033, 0053, 0057, 0058, 0059, 0075, 0076,
              0077, 0078, 0093, 0094, 0106, 0119, 0129, 7200, 9908)
              THEN XREGION= 8;
     ELSE IF CACSMPL IN (0018, 0019, 0024, 0029, 0030, 0131, 0213, 0248, 5205,
              9909)
              THEN XREGION= 9;
     ELSE IF CACSMPL IN (0014, 0015, 0028, 0235, 0250, 9910)
              THEN XREGION=10;
     ELSE IF CACSMPL IN (0125, 0126, 0127, 0128, 0395, 9911)
              THEN XREGION=11;
     ELSE IF CACSMPL IN (0052, 0280, 0287, 7043, 9912 )
              THEN XREGION=12;
     ELSE IF CACSMPL IN (0005, 0006, 0203, 9916)
              THEN XREGION=16;
        ELSE IF CACSMPL = 9999
              THEN XREGION= .;
```

b.   Super region (SUPREGA)

This variable groups the CONUS regions into 3 super regions: new, mature and other regions. Regions are grouped to reflect relative maturity of TRICARE Prime in each region.

New region contains regions 1, 2, and 5. Mature region consists of regions 6, 9, 10, 11, 12, and 16. Other region is comprised of the remainder of the CONUS regions.

```
*************************************************************************
* Assign SUPREGA
*************************************************************************,
IF XREGION IN (1,2,5) THEN SUPREGA = 1;
ELSE IF XREGION IN (6,9,10,11,12,16) THEN SUPREGA = 2;
ELSE IF XREGION IN (3,4,7,8) THEN SUPREGA=3;
```

2.   TRICARE Prime Enrollment and Insurance Coverage

a.   TRICARE Prime Enrollment Status (XENRLLMT)

For reporting purposes, a person is considered enrolled in TRICARE Prime if the poststratification enrollment type (ENGROUPP), based on DEERS data, indicates that they were enrolled at the time of data collection. The two categories for TRICARE Prime enrollment are as follows:

```
1 = Enrollees
2 = Not enrolled in TRICARE Prime
 . = Unknown

/* XENRLLMT--ENROLLMENT STATUS */
 IF ENGROUPP IN ( 1, 2)THEN XENRLLMT = 1;      /*  Enrolled  */
 ELSE IF ENGROUPP =3 THEN XENRLLMT = 2;        /*   Not Enrolled */
```

b.   TRICARE Prime Enrollment Status by Primary Care Manager (XENR_PCM)

This variable determines if a child has a civilian or a military primary care manager (PCM).

```
/* XENR_PCM--ENROLLMENT BY PCM TYPE */
 IF ENGROUPP = 1 THEN XENR_PCM = 1;      /*   Enrolled - mil PCM */
 ELSE IF ENGROUPP = 2 THEN XENR_PCM = 2;  /*   Enrolled - civ PCM */
 ELSE IF ENGROUPP = 3 THEN XENR_PCM = 3;  /*   Not Enrolled      */
```

c.   Most–Used Health Plan (XINS_COV)

The respondent's most–used health plan comes directly from Question 1. The three categories for this variable are as follows:

1 = TRICARE Prime
2 = TRICARE Standard/Extra (CHAMPUS)
3 = Other civilian health insurance or civilian HMO
. = Unknown

```
/* XINS_COV--INSURANCE COVERAGE */
 IF C99C01 = 1 THEN XINS_COV = 1;                 /* Prime */
  ELSE IF C99C01 = 3 THEN XINS_COV = 2;            /* Standard/Extra */
   ELSE IF C99C01 IN (4,6,7) THEN XINS_COV = 3;     /* Other Insurance */
```

d.   Types of Coverage (KCIVINS)

A binary variable was created to indicate the types of insurance that respondents use:

▪   Is the respondent covered by Civilian insurance (KCIVINS)

This variable has the following values:

1 = Yes

2 = No

.= Unknown

```
/* KCIVINS--IS BENEFICIARY COVERED BY CIVILIAN INSURANCE */
  IF C99C01=4 OR C99C58D=1 THEN KCIVINS=1;  /* YES */
   ELSE KCIVINS=2;                  /* NO  */
```

e.   Beneficiary group (XBNFGRP)

This variable is equal to the sampling variable BFGROUPP and has the following values:

1 = Active duty

2 = Family of active duty

3 = Family of retirees or survivors

.= Unknown

XBNFGRP = BFGROUPP;

3.   Satisfaction Measures

a.   Enrollment Intentions (KDISENRL)

If a child is enrolled in TRICARE Prime, his or her parent is asked about the likelihood of disenrolling (Question 59). A binary variable is created to group the responses to the enrollment questions into these categories:

1 = response of likely or very likely

2 = all other valid responses

. = missing response

```
/* KDISENRL--INTENTION TO DISNEROLL */
  IF C99C59  IN (4, 5) THEN KDISENRL = 1;           /* Yes */
    ELSE IF C99C59  IN (1, 2, 3, -5) THEN KDISENRL = 2;   /* No  */
```

4.   Access to Care (KMILWAT1, KCIVWAT1, KMILOFFC, KCIVOFFC, KBGPRB1, KBGPRB2)

Many of the survey questions on access relate directly to a TRICARE performance standard. The questions in Section VI of the questionnaire are answered only for the respondent's most-used facility. For these questions, we constructed binary variables, separately for military and civilian facilities, indicating whether the TRICARE standard was met. Table 3.5 presents those standards that were analyzed in the reports. The new variables have the following values:

1 = Standard was met

2 = Standard was not met

. = Missing information

TABLE 3.5

TRICARE STANDARDS FOR ACCESS

Access Measure	TRICARE Standard	Variable Name	Relevant Question
Wait for a Well Visit	Less than 4 weeks	KMILWATI, KCIVWATI	27
Waiting Room Wait	Within 30 minutes	KMILOFFC, KCIVOFFC	32

```
/* KMILWAT1--WAIT LESS THAN 4 WEEKS FOR WELL PATIENT VISIT AT MIL FACILITIES
   KCIVWAT1--WAIT LESS THAN 4 WEEKS FOR WELL PATIENT VISIT AT CIV FACILITIES*/
   IF C99C42  = 1 THEN DO;                    /* Military */
     IF C99C27  IN (1, 2, 3) THEN KMILWAT1 = 1;      /*  Yes */
     ELSE IF C99C27 = 4 THEN KMILWAT1 = 2;            /*  No  */
   END;
     ELSE IF C99C42  = 2 THEN DO;              /*  Civilian */
        IF C99C27  IN (1, 2, 3) THEN KCIVWAT1 = 1;    /*  Yes */
        ELSE IF C99C27 = 4 THEN KCIVWAT1 = 2;          /*  No  */
     END;

/* KMILOFFC--OFFICE WAIT OF 30 MINUTES OR MORE AT MILITARY FACILITES
   KCIVOFFC--OFFICE WAIT OF 30 MINUTES OR MORE AT CIVILIAN FACILITES */
   IF C99C42  = 1 THEN DO;                    /* Military */
     IF C99C32  IN (3,4) THEN KMILOFFC = 1;          /* Yes */
     ELSE IF C99C32  IN (1,2) THEN KMILOFFC = 2;       /*  No  */
   END;
     ELSE IF C99C42  = 2 THEN DO;                /*  Civilian */
        IF C99C32  IN (3,4) THEN KCIVOFFC = 1;        /* Yes */
        ELSE IF C99C32  IN (1,2) THEN KCIVOFFC = 2;     /* No */
              END;
```

Question 13 asks how much of a problem, if any, it was to get a referral to a specialist. The responses to this question are regrouped by a binary variable KBGPRB1. KBGPRB1 looks at these two categories:

1 = Those who reported a "big problem"

2 = Those who reported not a "big problem"

. = Missing response

```
/* KBGPRB1--BIG PROBLEM GETTING REFERRALS TO SPECIALISTS */
   IF C99C13  =1 THEN KBGPRB1 =1;                    /* YES */
     ELSE IF C99C13  IN (2,3) THEN KBGPRB1 =2;          /* NO  */
```

Similarly, variable KBGPRB2 was constructed. Question 30 asks about how much of a problem, if any, it was to get the care you or a doctor believed necessary. The responses to this question are regrouped by a binary variable KBGPRB2. KBGPRB2 looks at these two categories:

1 = Those who reported a "big problem"

2 = Those who reported not a "big problem"

. = Missing response

```
/* KBGPRB2--BIG PROBLEM GETTING NECESSARY CARE */
  IF C99C30  =1 THEN KBGPRB2 =1;                    /* YES */
     ELSE IF C99C30  IN (2,3) THEN KBGPRB2 =2;        /* NO  */
```

5.   Utilization

a.   Outpatient Utilization (KMILOP99, KCIVOP99)

Question 29 contains the total outpatient visits. This is renamed to KMILOP99 or KCIVOP99 depending on the answer to Question 42. The new variables have the following values:

1 = no visits
2 = 1 visit
3 = 2 visits
4 = 3 visits
5 = 4 visits
6 = 5 to 9 visits
7 = 10 or more visits

```
/* KMILOP99--OUTPATIENT VISITS TO MILITARY FACILITY
   KCIVOP99--OUTPATIENT VISITS TO CIVILIAN FACILITY */
  IF C99C42  = 1 THEN KMILOP99=C99C29;
     ELSE KMILOP99 = 1 ;
  IF C99C42  = 2 THEN KCIVOP99=C99C29;
     ELSE KCIVOP99 = 1 ;
```

E. WEIGHTING PROCEDURES

Estimates based on the 1999 HCSDB must account for the survey's complex sample design and for the biasing effects that nonresponse could have. As a part of sample selection, MPR constructed sampling weights (BWT99) that reflect the differential selection probabilities used to sample beneficiaries across strata. Nonresponse can also lead to distortions of the respondent sample with respect to the total population of DoD health care beneficiaries. Adjustments were made to these sampling weights, BWT99, to compensate for such distortions, using a weighting class method. These adjusted weights were also adjusted through the poststratification procedure to form the analysis weights, which we included in the final deliverable database. We also generated replicate weights for the final database so that users have the option of obtaining variance estimates with a replication method as well as the Taylor series method. This section presents these weighting procedures for the 1999 Child HCSDB.

1.   Constructing the Sampling Weight

The sampling weight was constructed on the basis of the sample design. In the 1999 Child HCSDB, stratified sampling was used to select the samples that would receive the questionnaire. Sampling for the Child survey was independently executed within strata defined by combinations of the three domains: enrollment status groups; age groups; and geographic areas.

The sample was selected with differential probabilities of selection across strata. Sample sizes were driven by predetermined precision requirements. For further details of the 1999 child sample design, see Jang et al. (1999). Our first step in weighting was to construct sampling weights that reflect these unequal sampling rates. These sampling weights can be viewed as the number of population elements that each sampled beneficiary represents. The sampling weight was defined as the inverse of the beneficiary's selection probability or:

(1)
$$W_s(h,i) = \frac{N(h)}{n(h)}$$

where:

$W_s(h,i)$ is the sampling weight for the i-th sampled beneficiary within the h-th stratum,
$N(h)$ is the total number of beneficiaries in the h-th stratum, and
$n(h)$ is the number of sampled beneficiaries from stratum h.

The sum of the sampling weights over selections from the h-th stratum equals the total population size of the h-th stratum or $N(h)$.

2.   Adjustment for Total Nonresponse

Survey estimates obtained from respondent data only can be biased with respect to describing characteristics of the total population (Lessler and Kalsbeek 1992). To reduce this bias, we developed procedures to deal with the problems caused by nonresponse. Two types of nonresponse were associated with the 1999 Child HCSDB:

- Unit or total nonresponse occurs when a sampled beneficiary did not respond to the survey questionnaire (e.g., refusals, no questionnaire returned, blank questionnaire returned, bad address).

- Item nonresponse occurs when a question that should have been answered is not answered (e.g., refusal to answer, no response).

With high item response rates observed in previous Adult HCSDB surveys, statistical imputation was not used to compensate for item nonresponse in the 1999 Child HCSDB. To account for total nonresponse, we implemented a weighting class adjustment followed by a poststratification adjustment.

Weighting class adjustments were made by partitioning the sample into groups, called *weighting classes*, and then adjusting the weights of respondents within each class so that they sum to the weight total for nonrespondents and respondents from that class. Implicit in the weighting class adjustment is the assumption that — had the nonrespondents responded — their responses would have been distributed in the same way as the responses of the other respondents in their class.

The 1999 Child HCSDB weighting classes were defined on the basis of the stratification variables: TRICARE Prime enrollment status, age group, and geographic area. To avoid excessive variance inflation, we required that each weighting class have at least 20 eligible respondents and that the adjustment factor not exceed 4.

Nonresponse adjustment factors for the 1999 Child HCSDB were calculated in two steps. First, we adjusted the sampling weights to account for sampled beneficiaries for whom eligibility status could not be determined. Sampled beneficiaries were then grouped as follows according to their response status d:

d=1   Eligible — completed questionnaire returned (FNSTATUS = 11)
d=2   Eligible — incomplete or no questionnaire returned (FNSTATUS = 12 or 20)
d=3   Ineligible — deceased incarcerated or permanently incapacitated beneficiary (FNSTATUS = 30)
d=4   Eligibility unknown — no questionnaire or eligibility data (FNSTATUS = 41 or 42)

Within weighting class c, the weights of the d=4 nonrespondents with unknown eligibility were redistributed to the cases for which eligibility was known (d=1,2,3), using an adjustment factor $A_{wc1}(c,d)$ that was defined to be zero for d=4 and defined as:

(2) $\quad A_{wc1}(c,d) = \dfrac{\sum\limits_{i \in S(c)} W_s(c,i)}{\sum\limits_{i \in S(c)} I_1(i)W_s(c,i) + \sum\limits_{i \in S(c)} I_2(i)W_s(c,i) + \sum\limits_{i \in S(c)} I_3 W_s(c,i)}$ for d = 1, 2, 3

where:

$A_{wc1}(c,d)$ is the eligibility-status adjustment factor for weighting class c and response status code d,

$I_d(i)$ is the indicator function that has a value of 1 if sampled unit i has a response status code of d and 0 otherwise,

$S(c)$ is the set of sample members belonging to weighting class c, and

$W_s(c,i)$ is the sampling weight (BWT99) for the i-th sample beneficiary from weighting class c before adjustment.

The adjustment $A_{wc1}(c,d)$ was then applied to the sampling weights to obtain the eligibility-status adjusted weight. Beneficiaries in weighting class c with response status code of d were assigned the eligibility-status adjusted weight:

(3) $\quad W_{wc1}(c,d,i) = A_{wc1}(c,d) W_s(c,i)$

Note that since d=4 cases have adjustment factors of zero, they also have adjusted weights of zero.

The next step in weighting was to adjust for the loss of completed questionnaires from beneficiaries known to be eligible. For this adjustment, the weighting class c from the previous step was again partitioned into groups according to the beneficiary's response status code d. Within weighting class c, the weights of the d=2 nonresponding eligibles were redistributed to the responding eligibles d=1, using an adjustment factor $A_{wc2}(c,d)$ that was defined to be zero for d=2,4. For Group 1 (d=1), the questionnaire-completion adjustment or $A_{wc2}(c,1)$ factor for class c was computed as:

(4) $\quad A_{wc2}(c,1) = \dfrac{\sum\limits_{i \in S(c)} I_1(i)W_{wc1}(c,i) + \sum\limits_{i \in S(c)} I_2(i)W_{wc1}(c,i)}{\sum\limits_{i \in S(c)} I_1(i)W_{wc1}(c,i)}$

By definition, all d=3 ineligible beneficiaries "respond," so the d=3 adjustment factor is 1, or $A_{wc2}(c,3)$=1. The questionnaire-completion adjusted weight was calculated as the product of the questionnaire-completion adjustment $A_{wc2}(c,d)$ and the previous eligibility-status adjusted weight $W_{wc1}(c,d,i)$, or:

(5) $\quad W_{wc2}(c,d,i) = A_{wc2}(c,d) W_{wc1}(c,d,i)$

As a result of this step, all nonrespondents (d=2,4) had questionnaire-completion adjusted weights of zero, while the weight for ineligible cases (d=3) remained unchanged, or $W_{wc2}(c,3,i)=W_{wc1}(c,3,i)$.

3.   Poststratification

Since the data on TRICARE Prime enrollment status used for selecting the 1999 HCSDB sample was imperfect, poststratification adjustments were used for the 1999 HCSDB to improve those data. Poststratification adjustments forced the adjusted weight totals to the DEERS population totals for the specified population groups that formed the *poststrata*. We used DEERS data as of December 1, 1999 as poststratification values for certain variables. Like stratum variables,

poststratum variables are also a combination of three key domain variables: enrollment group, age group, and geographic area (super regions). Construction of age and super region groups is the same as in sampling strata variables except for the reference date. However, enrollment group assignment was corrected with the following specification.

Beneficiary's Prime enrollment status (ZPCMD) was coded as one of these three cases: (1) "MIL" -- enrolled as a military PCM; (2) "CIV" -- enrolled as a civilian PCM; and (3) " " -- not enrolled. The specifications for the enrollment specification are:

- If Alternate Care Value (ACV) is one of the these three values: A = Active Duty; E = Prime; U = USTF, the corresponding beneficiary is regarded as Prime enrollee;

- Among Prime satisfying the above criterion, Civilian PCM should be assigned to the beneficiaries with Enrollment MTF values in the ranges of 7901-7916, 8001-8036, and 6901-6912;

- All other enrollees with other Enrollment MTFs including missing values are regarded as being enrolled with a military PCM

After creating the cross-classification of the three poststrata variables, enrollment group, age group, and super regions, an additional usual poststratification adjustment was implemented. To illustrate the use of poststratification, let g index poststrata, where g = 1, 2, ..., G. The poststratification adjustment factor for the g-th poststrata was defined as:

$$(6) \qquad A_{ps}(g) \; = \; \frac{N(g)}{\displaystyle\sum_{h,i \in S(g)} W_{wc2}(h,i)}$$

where:

$N(g)$ is the total number of beneficiaries in the DEERS frame associated with the g-th post-stratum, and

$S(g)$ is the set of sample records that are found in the g-th poststratum.

The poststratified adjusted weight for the i-th sample record from the h-th design stratum and the g-th poststratum was then calculated as:

$$(7) \qquad W_{ps}(g,h,i) = A_{ps}(g) \; W_{wc2}(h,i)$$

When summed over members of poststratum g, the poststratified weights now total $N(g)$. This poststratified weight is the final analysis weight used for all reporting and analysis.

5.   Calculation of Jackknife Replicates

We constructed the 40 jackknife replicates as follows. First, the entire file of sampled beneficiaries was sorted according to stratification variables. Next, 40 mutually exclusive and exhaustive systematic sub-samples of the full sample was identified in the sorted file.[5] A jackknife replicate was then obtained by dropping one subsample from the full sample. By dropping each subsample in turn, the same number of different jackknife replicates as subsamples was defined. The entire

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[5]With 40 replicates, further statistical analyses such as confidence intervals and hypothesis tests can be based on approximate normal distribution. Inferences with finite replicate number k are based on the student t distribution with k-1 degrees of freedom. Thus, with 40 replicates, normal approximation can be used in constructing confidence intervals or hypothesis testing.

weighting process as applied to the full sample was then applied separately to each of the jackknife replicates to produce a set of replicate weights for each record. A series of jackknife replicate weights (WRWT01-WRWT40) was then attached to each beneficiary record in the final database. Given jackknife replicate weights, WesVarPC[®] (Brick et al. 1996) can be used to construct jackknife replication variance estimates.

Chapter

4

Analysis

This chapter explains how the Child HCSDB variables were processed during the analysis phase of the project. It covers the procedure for calculating response rates, development of the dependent and independent variables for the analysis, and the method for estimating the variance of the statistics.

This year's results are being presented in an electronic format.

A. RESPONSE RATES

In this section, we present the procedures for response rate calculation along with a brief analysis of response rates for domains of interest. Response rates for the 1999 Child HCSDB were calculated in the same way as they were calculated for the 1999 Adult HCSDB. The procedure is based on the guidelines established by the Council of American Survey Research Organizations (CASRO 1982) in defining a response rate.

1. Definition of Response Rates

In calculating response rates and related measures, we considered two different rates: *unweighted* and *weighted.* The unweighted version of the response rate represents the counted proportion of respondents among all sampled units, and the weighted version indicates the estimated proportion of respondents among all population units. When sampling rates across all strata are equal, these two approaches give the same result. However, the 1999 HCSDB used different sampling rates across strata. So, it is useful to show both "unweighted" and "weighted" response rates. We calculated these two response rates in the same way. As presented in Chapter 3.C, all sampled beneficiaries were completely classified into these four main (six detailed) groups: Group 1 (G1-1 and G1-2), Group 2, Group 3, and Group 4 (G4-1 and G4-2):

- Group 1 (G1-1): eligible and complete questionnaire returned;

- Group 1 (G1-2): eligible and incomplete questionnaire returned;

- Group 2: eligible and questionnaire not returned;

- Group 3: ineligible

- Group 4 (G4-1): eligibility unknown and locatable; and

- Group 4 (G4-2): eligibility unknown and unlocatable.

The unweighted counts reflect the number of sampled cases (n_i for Group i, where i =1,2,3,4), and the weighted counts reflect the estimated population size[1] ($\hat{N}_i$ for Group i, where i =1,2,3,4) for the four main response categories.

---

[1]The weighted sum of sampled units can be regarded as an estimated population size. The base weight (BWT99) was used in calculating weighted counts, where BWT99 is the inverse of selection probability.

These weighted and unweighted counts were also calculated for the subgroups G1-1, G1-2, G4-1, and G4-2, where we denote the unweighted counts by $n_{1,1}$, $n_{1,2}$, $n_{4,1}$, and $n_{4,2}$, and the weighted counts by $\hat{N}_{1,1}, \hat{N}_{1,2}, \hat{N}_{4,1}, \text{and} \hat{N}_{4,2}$. With these values, we calculated response rates as follows. Each sampled beneficiary was classified as eligible (member of Group 1 or 2), ineligible (member of Group 3), or of unknown eligibility (member of Group 4). Then, we calculated the unweighted *eligibility determination rate EDR* as:

(1)
$$EDR = \frac{n_1 + n_2 + n_3}{n}$$

where n is the total sample size or $n = n_1 + n_2 + n_3 + n_4$. Similarly, we calculated the weighted eligibility determination rate EDR_w as:

(2)
$$EDR_w = \frac{\hat{N}_1 + \hat{N}_2 + \hat{N}_3}{\hat{N}}$$

where $\hat{N}$ is the estimated total population size or $\hat{N} = \hat{N}_1 + \hat{N}_2 + \hat{N}_3 + \hat{N}_4$. *EDR* measures the proportion of sampled beneficiaries whose eligibility status was determined, while EDR_w measures the equivalent population proportion for DEERS.

Given eligibility determination rates, we calculated the *questionnaire return rate* or *QRR* (unweighted and weighted) as follows:

(3)
$$QRR = \frac{n_1}{n_1 + n_2} \qquad \text{and} \qquad QRR_w = \frac{\hat{N}_1}{\hat{N}_1 + \hat{N}_2}.$$

For the purpose of calculating *QRR*, the sampled beneficiary need only have answered one item on the questionnaire to be classified as having "returned the questionnaire."

Using Group 1 as the definition of "respondent" would result in an underestimation of the true extent of nonresponse and interject many missing values into item-specific analyses. For this reason, we applied a different definition of "respondent" to calculate final response rates and weighting adjustments. (See Section III.C for the definition of a completed questionnaire.)

We applied this definition to the Group 1 returned questionnaires, partitioning them into G1-1 and G1-2, where G1-1 comprised the returned questionnaires with enough items answered to be considered "complete." The counts $n_{1,1}$, $\hat{N}_{1,1}$, $n_{1,2}$, and $\hat{N}_{1,2}$ denote the unweighted and weighted sample sizes corresponding to G1-1 and G1-2, respectively. Using this notation, we defined the unweighted and weighted questionnaire completion rates (*QCR* and QCR_w) as follows:

(4)
$$QCR = \frac{n_{1,1}}{n_1} \qquad \text{and} \qquad QCR_w = \frac{\hat{N}_{1,1}}{\hat{N}_1}.$$

The final response rate for the 1999 HCSDB was obtained as the product of the eligibility determination rate, the questionnaire return rate, and the questionnaire completion rate, or:

(5)
$$FRR = EDR \times QRR \times QCR \qquad \text{and} \qquad FRR_w = EDR_w \times QRR_w \times QCR_w$$

The final response rates (*FRR* and *FRR_w*) consider only the G1-1 cases as respondents (i.e., those who answered enough questions to have returned what was considered a completed questionnaire).

We also calculated two measures used in the previous surveys: the location rate and the completion rate. To calculate the location rate, we first estimated the number of Group 4 "located" beneficiaries who were expected to be eligible for the survey:

(6)

$$l = \left(\frac{n_1 + n_2}{n_1 + n_2 + n_3} \right) n_{4,1} \qquad \text{and} \qquad l_w = \left(\frac{\hat{N}_1 + \hat{N}_2}{\hat{N}_1 + \hat{N}_2 + \hat{N}_3} \right) \hat{N}_{4,1}$$

where *l* and *l_w* are unweighted and weighted estimates of the number of "located" beneficiaries among Group 4. Then, the unweighted and weighted "location rates" are defined by:

(7)

$$LR = \frac{n_1 + n_2 + l}{n_1 + n_2 + n_4 \left(\frac{n_1 + n_2}{n_1 + n_2 + n_3} \right)} \quad \text{and} \quad LR_w = \frac{\hat{N}_1 + \hat{N}_2 + l}{\hat{N}_1 + \hat{N}_2 + \hat{N}_4 \left(\frac{\hat{N}_1 + \hat{N}_2}{\hat{N}_1 + \hat{N}_2 + \hat{N}_3} \right)}.$$

And the corresponding unweighted and weighted "completion rates" are defined by:

(8)

$$CR = \frac{n_{1,1}}{n_1 + n_2 + l} \qquad \text{and} \qquad CR_w = \frac{\hat{N}_{1,1}}{\hat{N}_1 + \hat{N}_2 + l_w}.$$

The final response rates in Equation (5) can also be obtained by multiplying the location rate in Equation (7) by the completion rate in Equation (8).

In the definitions in Equations (2) through (8), the subscript "*w*" indicates that all calculations involve weighted counts. The method that we used to calculate response rates is consistent with the CASRO guidelines.

2. Reporting

We examined response rates to identify patterns across different domains or characteristics. While analysts prefer weighted rates that reflect the estimated proportion of respondents among all population beneficiaries, operational staff are often interested in getting unweighted measures. All tables include unweighted and weighted values under columns headed "Unweighted" and "Weighted", respectively. In the following, we focus on discussing unweighted response rates for domains of interest.

Table 4.1 includes response rates for the 1999 Child HCSDB as a whole, by age groups, super regions, and by enrollment status.

- Overall: The overall unweighted response rate for the 1999 Child HCSDB was about 39 percent (which is found in Table 4.1 in the row of "Overall" under the column of "FRR" in "Unweighted").

- Age group: Response rates according to age groups are: Sponsors of children younger than 6 years old - 36 percent; between 6 and 12 years old - 39 percent; between 13 and 17 years old - 43 percent

- Enrollment status: Sponsors of nonenrollees had a response rate of 34 percent, which is less than those for children with a military PCM (41 percent) or for children with a civilian PCM (42 percent).

- Geographic area: Response rates according to region are: New regions – 40 percent; mature regions – 38 percent; and other regions – 39 percent.

TABLE 4.1

RESPONSE RATES OVERALL, BY ENROLLMENT GROUP, BY AGE GROUP, AND SUPER REGION

	UNWEIGHTED			WEIGHTED		
	FLR[1] (%)	FCR[2] (%)	FRR[3] (%)	FLR (%)	FCR (%)	FRR (%)
Overall	95.9	40.8	39.1	95.6	40.2	38.5
Enrollment Group						
Military PCM	96.2	42.8	41.2	96.2	42.8	41.1
Civilian PCM	97.0	43.4	42.1	96.7	41.9	40.5
Not enrolled	94.5	36.0	34.0	94.6	36.3	34.3
Age Group						
Younger than 6 years old	95.0	37.4	35.5	94.8	37.3	35.3
Between 6 and 12 years old	95.4	40.7	38.8	95.2	40.2	38.3
Between 13 and 17 years old	97.1	44.0	42.8	96.9	42.9	41.6
Super Region						
1. New regions (regions 1, 2, 5)	95.9	42.0	40.2	95.7	41.5	39.7
2. Mature regions (regions 6, 9-12 and 16)	95.5	39.7	38.0	95.3	39.2	37.4
3. Other regions (regions 3, 4, 7, 8)	96.1	40.6	39.1	95.9	39.9	38.3

B. VARIANCE ESTIMATION

To calculate the standard errors (the squared roots of variances) of estimates for the 1999 HCSDB analyses, we used SUDAAN™ (Shah et al. 1996) and the Taylor series linearization method. For analysts who prefer a replication method, 40 replicate weights for jackknife replication are provided in the public use file. Here we describe variance estimation methods for the Taylor series linearization method and the jackknife replication method.

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[1] Final Location Rate
[2] Final Completion Rate
[3] Final Response Rate

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1.   Taylor Series Linearization

MPR uses Taylor series linearization to produce standard errors for the estimates from the 1999 HCSDB for adults and children. For most sample designs, including the 1999 HCSDB, design-based variance estimates for linear estimators of totals and means can be obtained with explicit formulas. Estimators for nonlinear parameters such as ratios do not have exact expressions for the variance. The Taylor series linearization method approximates the variance of a nonlinear estimator with the variances of the linear terms from the Taylor series expansion for the estimator (Woodruff 1971). To calculate variance estimates based on the Taylor series linearization method, given HCSDB's stratified sampling design, we need to identify the stratum as well as the final analysis weight for each data record. We included these variables on the final database. For variance estimation, we use the general purpose statistical software package SUDAAN to produce Taylor series variance estimates. SUDAAN is the most widely used of the publicly available software packages based on the Taylor series linearization method. In SUDAAN, the user specifies the sampling design and includes variables recording stratum and the analysis weight for each record. MPR uses SAS to make camera-ready tables for numerical results from SUDAAN. Unlike WesVarPC, there is no restriction to the number of strata in SUDAAN, so stratification effects can be incorporated in calculating standard errors.

Some of the reported estimates are composite scale scores that are linear functions of individual estimates. The sampling variance for these scale estimates can be directly obtained from the usual design-based variance estimation formula by incorporating the covariance terms among individual items within the scale.

$$\text{Let } \bar{y} = \frac{\sum_{h=1}^{L} \sum_{i=1}^{n_h} W_{hi} Y_{hi}}{\sum_{h} \sum_{i} W_{hi}}$$

denote an estimator of a composite scale where individual composite measure for beneficiary (*h*, *i*) consists of *r* items is thus denoted as:

$$Y_{hi} = \sum_{j=1}^{r} X_{hi,j} / r \quad .$$

Then, a customary variance estimator of $\bar{y}$ is the sum of the item variances and covariances among item estimates:

$$v(\bar{y}) = \frac{1}{r^2} \left\{ \sum_{j=1}^{r} v_j + \sum_{j \neq j'} \text{cov}(\bar{x}_j, \bar{x}_{j'}) \right\} \quad ,$$

All of the variance components can be obtained from the usual survey specific software such as SUDAAN and WesVarPC, which are described above.

2.   Jackknife Replication

Jackknife replicate weights can be used to calculate the standard errors of estimates. An estimate of a characteristic of interest is calculated (with the same formula as the full sample estimate) using each set of replicate weights; these replicate estimates are used to derive the variance of the full sample statistic.

a.   Calculation of Jackknife Replicates

A series of jackknife replicate weights are calculated and attached to each beneficiary record in the database. In jackknife replication, a prescribed number of replicates are generated by deleting selected cases from the full sample. Given jackknife replicate weights, WesVarPC® (Brick et al. 1996) can be used to produce variance estimates. WesVarPC allows jackknife variance estimation for two primary sampling units per stratum up to 100 strata, or up to 256 replicates without stratification. The 1999 HCSDB for children involves 27 strata. To use WesVarPC, we must modify the actual design to create appropriate replicates. The two options for doing this are to (1) form fewer than 256 replicates by ignoring stratification or (2) form replicates by assigning each unit to one of two pseudo primary sampling units (PSUs) within each of the 27 strata. For either option, the entire weighting process as described in the previous sections must be applied for each jackknife replicate.

To be consistent with the adult survey, we use option 1 to construct the jackknife replicates as follows. First, the entire file of sampled beneficiaries is sorted in sample selection order in which stratification variables are only used in the sorting process. Next, 40 mutually exclusive and exhaustive systematic subsamples[4] of the full sample are identified in the sorted file. A jackknife replicate is then obtained by dropping one subsample from the full sample. As each subsample is dropped in turn, the same number of different jackknife replicates as subsamples is defined. The entire weighting process as applied to the full sample is then applied separately to each of the jackknife replicates to produce a set of replicate weights for each record. Then, the series of jackknife replicate weights (WRWT01 – WRWT40) is attached to the final data in order to construct jackknife replication variance estimates.

b.   Software for Jackknife Replication

The jackknife variance of the full sample statistic of interest is estimated from the variability among the replicated estimates. When the replicate weights are produced according to the above procedure, jackknife replicate standard errors can be produced using custom written software or publicly available statistical software. For instance, WesVarPC is a popular software package that calculates standard errors based on replication methods. It produces standard errors for functions of survey estimates such as differences and ratios as well as simple estimates such as mean, proportion, and totals. Additional details about the jackknife replication approach are given in Wolter (1985). Like other replication methods, the jackknife variance estimation can be easily implemented for any form of estimate without further algebraic work.

C. SIGNIFICANCE TESTS

In the child TRICARE Consumer Reports statistical testing is done to show whether values in the report cards are statistically different from external benchmarks.

The null hypothesis for this significance test is that a mean value is essentially equal to the benchmark, and the alternative is that a mean value is different from the benchmark. That is, we are testing:

$$H_0: m_1 = m_2 \quad \text{vs. } H_a: m_1 \neq m_2$$

---

[4]With 40 replicates, further statistical analyses such as confidence intervals and hypothesis tests can be based on an approximate normal distribution. Inferences with finite replicate numbers *k* are based on the student *t* distribution with *k*-1 degrees of freedom. Thus, with 40 replicates, normal approximation can be used in constructing confidence intervals or hypothesis testing.

For instance, μ_1 might represent the characteristic of interest for mature regions while μ_2 might represent the benchmark.

With large sample sizes, the estimator $\overline{y}_1 - \overline{y}_2$ is approximately distributed as a normal distribution with mean zero and variance $s^2_{\overline{y}_1 - \overline{y}_2}$ under the null hypothesis. In testing the hypothesis, a test Statistic T is thus calculated as:

$$T = \frac{\overline{y}_1 - \overline{y}_2}{\hat{s}_{\overline{y}_1 - \overline{y}_2}}.$$

With $\alpha = 0.05$, the null hypothesis should be rejected if $|T| > 1.96$. The denominator of T, the standard error of $\overline{y}_1 - \overline{y}_2$, can be calculated as the square root of the variance estimator $s^2_{\overline{y}_1 - \overline{y}_2}$:

$$\hat{s}^2_{\overline{y}_1 - \overline{y}_2} = \mathrm{var}(\overline{y}_1) + \mathrm{var}(\overline{y}_2) - 2\,\mathrm{cov}(\overline{y}_1, \overline{y}_2).$$

If $\overline{y}_1$ and $\overline{y}_2$ are independent, then the covariance term equals zero and thus the variance estimator can be easily obtained as the sum of two individual variance estimators. With an external benchmark, the covariance can be assumed to be zero. All detailed programs are included in Appendix G.

D. DEMOGRAPHIC ADJUSTMENTS

All scores in the report card are adjusted for children's and parent's characteristics affecting their scores.

The purpose of risk-adjustment is to make comparisons of outcomes, either internally or to external benchmarks, that control for characteristics of the respondent beyond the health care provider's control. Based on previous work with CAHPS, it appears that ratings are affected by characteristics of children and their parents. Besides controlling for these factors, the methodology used:

- Permits risk adjusted comparisons among regions within and across beneficiary and enrollment groups

- Permits testing the hypothesis that the difference in risk-adjusted scores between a region or the rest of the MHS and a benchmark is due to chance

- Is appropriate for CAHPS composites and global satisfaction ratings

The model used for this adjustment is:

$$Y_{ijkl} = \beta_{1l} A_{1l} + \beta_{2l} A_{2l} + \beta_{3l} A_{3l} + \beta_{4l} P_l + e,$$

where Y is a dependent variable, β_{ql}'s are parameters to be estimated, A_{ql}'s are parents' age dummy variables ($A_{ql} = 1$ if the parent is in age group q, and 0 otherwise; A_l = age 0-5, A_2 = age

6-12, A_3 = age 13-17) and P_i is the child's health status. The subscripts i and j refer to the region and beneficiary.

Given 3 super regions, the specification we use is:

$$e_{ijkl} = d_{0l} + d_{1l}R_{l1} + d_{2l}R_{l2} + w_{ijk} \,,$$

where R_i 's are regional dummy variables (R_{li} = 1 if the beneficiary is in super region i and beneficiary group l, and 0 otherwise).

The adjusted mean of the dependent variable Y for region i can be obtained as:

$$\overline{y_i} = \hat{d}_0 + \hat{d}_i + \hat{b}_1\hat{A}_1 + \hat{b}_2\hat{A}_2 + \hat{b}_3\hat{A}_3 + \hat{b}_4\hat{P} \,,$$

where $\hat{b}_i$'s are estimated model parameters, $\hat{A}_i$'s are weighted proportions of age group i among the MHS population, and $\hat{P}$ is the weighted MHS mean. For beneficiary group l, the adjusted regional value is:

$$\overline{y_{il}} = \hat{d}_{0l} + \hat{d}_i + \hat{b}_{l1}\hat{A}_{l1} + \hat{b}_{l2}\hat{A}_{3l} + \hat{b}_{3l}\hat{A}_{3l} + \hat{b}_{4l}\hat{P}_l \,,$$

where $\hat{A}_{i\,ql}$'s are weighted proportions of age group q for beneficiary group l in the MHS.

E. DEPENDENT AND INDEPENDENT VARIABLES

Dependent, or outcome, variables represent the research questions the survey is designed to answer. For example, beneficiary satisfaction and access are dependent variables in this analysis. The research questions are listed in Chapter I.

Independent, or explanatory, variables do not directly represent research questions, but they may help to explain the differences in one or more of the outcome variables. They may also be correlated with one or more dependent variables. For example, a beneficiary's satisfaction with health care may be correlated with their age and/or TRICARE Prime enrollment status.

Beginning with the HCSDB in a SAS format, MPR programmers developed SAS procedures such as PROC FREQ and PROC MEANS and SAS-callable SUDAAN procedures such as PROC DESCRIPT and PROC CROSSTAB to generate the relevant statistics (e.g., per cents, means, and standard errors). These statistical values were moved directly from SAS programs to the cells of the tables.

F. REPORTS

This section discusses the main purpose of the child report cards. For further statistical and web specifications for the child report cards, please refer to Appendices E and F.

1.   1999 Child TRICARE Consumer Report

a.   Purpose

The purpose of the report is to provide Lead Agents and MTF commanders with a comprehensive description of TRICARE beneficiaries' satisfaction with their child's care relative to civilian benchmarks. The report card provides an easy-to-understand snapshot of various aspects of the

quality of care in the MHS. Users will be able to easily "drill down" to follow the performance of providers among different enrollment and beneficiary groups.

b.   Consumer Report Production

1)   Programming Specifications

Data for the report are arranged in a SAS dataset and consist of summary records indexed by region, age group, and enrollment group. Benchmark records with no geographic reference are also included in the file. A summary record contains: mean composite scores, p-values for tests of difference from the relevant benchmark, a categorical variable describing the existence and direction of significant differences. Other records contain mean scores for individual elements of the composite. Benchmark records contain national mean values for a comparable population. Programs used to produce the report cards are in Appendix E.

2)   Web Specifications

The SAS dataset serves as the basis for the electronic report. For the 1999 HCSDB, a single file contains all super regions and CONUS values. Specifications for the web design of the child consumer reports are in Appendix F.